

Visual Quality

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... prevention of all constructions markedly inharmonious with the scenery or which would unnecessarily obscure, distort, or detract from the scenery.

Frederick Law Olmsted, 1865
The Yosemite Valley and the Mariposa Big Tree Grove

Some years ago a park visitor said to me, "I don't know how you guys do it, but the minute I enter a national park I sense that I am in a place that's special." The experience he described comes from a variety of clues; the treatment of road surface and road side, the quality and clarity of the signs, the architecture of the buildings, the standard of maintenance, the elimination of clutter, the accessibility of information.

Not all of these clues are visual, of course. Some spring from the symbolic importance of the parks, but even the power of these symbols can be diminished by poor design, or shoddy maintenance, or confusing information.

Like gravity, quality tends to downward movement. One more sign, a poorly patched road, badly matched architecture, worn-out furnishings accumulate over time. To preserve the sense that a national park unit is "special" we must step back from our day-to-day activities and see the results of the accumulation. The purpose of this report is to cause you to look at your park and its accumulation. Does the built environment strengthen the "special" character of the place? If not, what can be improved?

Denis P. Galvin



ABOUT THIS REPORT

This publication is about the visual quality of structures built to accommodate visitors and park administration and management in the national parks. It is about the relationship of structures to park resources and the complex systems of natural, prehistoric, and historic resources for which parks are established.

The resources being protected are representative of the finest and most important elements of the nation's natural and cultural heritage, so it is essential that added structures neither detract from nor compete with them. Every effort should be made to provide built environments worthy of the park resources.

This report is intended to raise awareness of and sensitivity to the importance of the visual quality

of the built environment in parks. It provides a review and discussion of visual quality strategies and tools for planning, designing, and managing – strategies and tools that are drawn from both park and nonpark experiences – and illustrates, using case studies, applications in selected units of the national park system.

The intended audience for this report includes anyone who can influence visual quality. This includes directors, superintendents, rangers, interpretive specialists, chiefs of maintenance, and facilities managers, as well as landscape architects, architects, planners, and engineers.



HISTORY AND ACKNOWLEDGEMENTS

This report reflects the interests and concerns of Park Service managers, designers, and planners about developed area visual quality. It has its roots in discussions between the late John (Jay) Bright of the National Park Service and Ervin Zube from the University of Arizona. Those discussions, starting in 1985, led to a proposal to then Denver Service Center (DSC) Manager Denis Galvin (now Associate Director for Planning and Development) for an assessment of the nature and extent of concern with visual quality in developed areas. Continued support for the project came from DSC Managers Patten and Reynolds and from NPS Directors Mott and Ridenour. In 1988 Director Mott appointed a Visual Quality Initiative Advisory Committee, chaired by Jay Bright and including David Mihalic, Irvin Dunton, Terry Carlstrom, and John Teichert. Shortly thereafter Geoff Swan was added. Activities undertaken in support of the initiative include

- site surveys of the visual quality of built environments in selected NPS units
- a mail survey of NPS personnel attitudes about visual quality in developed areas

- reviews of the history of visual quality concerns and techniques for addressing visual quality in built environments
- presentations at DSC design workshops, at a regional directors' meeting, and at regional superintendents' and maintenance-facilities managers' meetings

All of the above contributed to the development of the project and to this report.

Others deserving credit for the project include Tom Dall, Rich Giamberdine (who took over the DSC management responsibilities following Jay Bright's retirement), Carol Whittaker (who served as a research assistant for the project at the University of Arizona), and Joe Crystal, Rick Dorrance, Dick Morishige, and Dennis Nagao.

Finally, it is important to acknowledge the vision of Jay Bright in getting it started. This publication is dedicated to his memory.

Ervin H. Zube

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THE SEARCH FOR HARMONY IN PARK DEVELOPMENTS

Ervin H. Zube

FROM RUSTIC DESIGN TO . . . ?

In 1865 Frederick Law Olmsted reported to the California legislature on principles that should be followed by the commission charged with management of the Yosemite Valley and the Mariposa Big Tree Grove. He stated,

The main duty with which the Commissioners should be charged should be to give every advantage practicable to the mass of the people to benefit by that which is peculiar to this ground and which has caused Congress to treat it differently from other parts of the public domain. This peculiarity consists wholly in its natural scenery.

The first point to be kept in mind then is the preservation and maintenance as exactly as is possible of the natural scenery; the restriction, that is to say, within the narrowest limits consistent with the necessary accommodations of visitors, of all artificial constructions and the prevention of all constructions markedly inharmonious with the scenery or which would unnecessarily obscure, distort, or detract from the scenery. (Olmsted 1865)

With those words Olmsted set in place criteria for developments in national parks that have lasted more than 125 years. His basic message was that park resources come first and that all developments provided for visitor services, administration, and maintenance should be visually subservient to those resources.

EARLY CONCERNS FOR HARMONY

Following the establishment of the National Park Service in 1916, concern for the relationship of developments with park resources was voiced frequently in the directors' annual reports to the secretary of interior and in other NPS documents. In his reports for 1919 and following years, for example, Stephen Mather described desirable relationships between buildings and landscapes with

phrases such as "a result which will be harmonious" and "one harmonious whole."

In 1918 Mather hired the first of many landscape architects who were charged with ensuring the harmony of all developments in the parks. Depending upon the physical size and geographic location of a park, development could include roads for access to and movement within the park, utility systems, visitor sleeping and dining accommodations, museums, signs, site furniture, trails, and management and maintenance facilities.

The railroad companies that provided most of the early accommodations in national parks made a major contribution to the design of buildings that were perceived to be in harmony with park resources. Inspiration for the first hotels frequently came from mountain resort hotels in Norway and Switzerland with American adaptations and details. These hotels were constructed of local materials and were designed in harmony with the surrounding landscape. Among the earliest were Old Faithful Inn in 1903 and New Canyon Inn in 1910 built by the Northern Pacific Railroad in Yellowstone National Park. The Great Northern Railroad built Glacier Park and Many Glacier hotels in 1913 and 1915 respectively, as well as a number of other visitor facilities in Glacier National Park. The Atcheson, Topeka, and Santa Fe Railroad built the El Tovar Hotel at the Grand Canyon in 1905 while the canyon was still administered by the U.S. Forest Service. More hotels and many other structures were built in other parks using a rustic design theme during the first half of the twentieth century.

The elements of rustic design were described as early as 1935 by Albert Good, in *Park and Recreation Structures*, which was published in an expanded version in 1938 and reissued in 1990. In discussing rustic design, Good suggested that buildings should be subordinated to landscape by locating them "behind existing plant material or in some secluded spot . . . partly screened by some other natural feature." He suggested several other design attributes that would contribute to harmonizing buildings with park resources, attributes that would help buildings blend in with the

landscape, including appropriate colors and roof textures, foundation plantings, rough rock footings, and battered walls. In the introduction to the 1990 reprint, historian Laura Soulliere Harrison comments, "The available materials used in building these structures gave them a natural camouflage in the landscape." Some of these same design attributes now figure prominently in community and historic district design guidelines.

Tweed and Harrison note that "as practiced by the National Park Service between 1916 and 1942, 'rustic architecture' most certainly was not a style, but rather a concept or design ethic which encompassed many styles." Inspiration for the design of park structures came from indigenous rural structures as well as from the mountain resort hotels of Europe. Tweed and Harrison comment that Stephen Mather was responsible for suggesting the idea of patterning some of the rustic buildings after simple, utilitarian, trapper-style cabins. They also concluded that, "For the first time the government was attempting to use architecture as a tool toward creating a distinctive park image."

Contemporary interpretations of that era suggest that the government did succeed in creating a park image. Good's publication served as a design manual for projects undertaken by the several depression era conservation programs, including the Public Works Administration, Works Progress Administration, and Civilian Conservation Corps (Wirth 1980). Rustic design facilities appeared in national, state, county, and metropolitan parks (Cutler 1985), many of which are still in use and are being nominated for listing on the National Register of Historic Places.

Rustic design, with varying regional expressions, lasted until World War II. There were, however, some earlier exceptions to this design theme. One such departure was the 1940 administration museum building at Ocmulgee National Monument in Macon, Georgia. It was designed in the "Art Moderne" style popularized at the 1936 New York World's Fair.

CHANGING DIRECTIONS AFTER WORLD WAR II

Following World War II, major changes occurred in the design of park structures and in public perceptions of their harmonious relationships with

park resources. A number of events contributed to these changes. Not least among them was the hiring of many bright young designers who knew little or nothing about the rustic design tradition. These were architects and landscape architects who had been trained in the modern school of design. This school, which developed in Europe during the 1930s, rapidly took a firm hold on American design education following the war. Mission 66 began in 1956. It generated so much work that the design review procedures that had prevailed before the war and that might have served to convey former design traditions to the new designers were considerably relaxed. The generation of designs, production of working drawings, and construction of facilities were all done at an accelerated pace (Carnes 1984).

A significant new type of facility, the visitor center, was associated with Mission 66. Its adoption and rapid acceptance presented the young designers with a new challenge and an opportunity to experiment. In addition, the reorganization of planning and design services from the decentralized regional offices to new design and planning offices in San Francisco and Philadelphia created groups of these bright young designers who were then able to collectively exert greater influence on design decisions.

The design changes initiated by this wave of new talent did not always maintain the kind of harmonious relationships that had existed before World War II. Opposition to the new designs was voiced most strongly in articles and letters to the editor of *National Parks* magazine. While a few letters offered support for modern or contemporary design, Olmsted's words of 1865 appeared in support of arguments against many of the new designs – arguments decrying loss of harmony in the parks. One of the more telling statements was the comment that the new structures were of a "freak styles" that "seem(s) to steal the show" and . . . "dominate the landscape" (Butcher 1952).

The architectural press was also critical. An article in the January 1957 issue of *Architectural Record* accused the National Park Service of being timid and not getting great architecture for the great landscapes of the national parks. By 1970 attitudes changed and the American Institute of Architects commended the National Park Service for its attempts at regional character in the design of facilities and for continuing efforts to provide

design excellence in all its endeavors. The next year, the American Institute of Architects *Journal* published an article summarizing the accomplishments of Mission 66 and titled it, "Our Park Service Serves Architecture Well" (Koehler 1971). In the eyes of at least one influential group of critics the National Park Service, after a hiatus of nearly two decades, was once again producing regionally harmonious buildings.

The 12-Point Plan for the National Park Service, published in 1986, continued the call for harmonious designs and included several objectives related to the planning and design of appropriate park facilities – objectives that also relate directly to the visual quality of developed areas in parks. These include:

- provide visitor and management facilities that are harmonious and visually pleasing in their simplicity, and that, wherever possible, provide interpretation/information opportunities

- evaluate the feasibility for adaptive use of historic and nonhistoric structures before new construction

The concern with harmonious relationships was reiterated in the 1988 NPS *Management Policies*, which state

... visitor and management facilities provided by the Park Service and its concessionaires will be harmonious with park resources ... Facilities will be integrated into the park landscape and environs so as to cause minimum impact. Development will not compete with or dominate park features.

This concern was reinforced by then Director Ridenour's June 27, 1990, memorandum on visual quality of the parks' built environments. In this memorandum, which was addressed to the directorate, field directorate, and park superintendents, he stated



Figures 1-2: Rustic design; Thunderbird Lodge, Canyon de Chelly National Monument and East Glacier Railroad Station at Glacier National Park, both reflecting regional materials and forms. (Photographs by E.H. Zube)

Figures 3-4:
Contrasting design approaches: Stephen Mather Training Center at Grand Canyon National Park, a Post-World War II design that could be found anywhere in the United States, and Horseshoe Curve National Historical Landmark, a new visitor center with siting and materials that are sympathetic with traditional forms and the existing landscape.
 Construction completed April 1992.
 (Photographs April 1992, by A. Thornton, National Park Service, Denver Service Center)



The design and maintenance of park facilities are critical to ensuring that our visitors have the most rewarding experience. A positive park experience often begins with the visual quality of the park's built environment.

DEFINING HARMONIOUS RELATIONSHIPS

Albert Good implicitly defined harmonious relationships, in words similar to those used in the 12-Point Plan, as the subordination of a structure to environment and having buildings blend in with the landscape. He was writing in 1938 about buildings that were constructed of natural materials in natural landscape parks. This concept of harmonious design was based on the use of local materials and a scale and form that appeared fit-

ting to the existing landscape context. The structures illustrated and detailed in his book were aptly described as rustic architecture. Oversized boulders and logs were considered appropriate for rugged mountain landscapes – depending on whether they were barren or forest covered. Smaller scale materials were appropriate in less rugged topography.

In a contemporary context, Peter Blake (1990) describes the harmonious introduction of new buildings into existing developed areas as an "architecture of courtesy." He identifies three elements that will presumably produce harmonious relationships without copying existing historic buildings and do not violate the past, the texture, or the scale of the context in which the addition is built.

The design of new structures should be contemporary but should reflect the past without attempting to re-create or dominate it.

The challenge for the National Park Service today is more demanding than at the time Good was writing. Harmony must be sought in not only natural areas and historic settings but also in pre-historic sites and recreational and cultural landscapes. Further complicating the task are the diverse locations of these parks in urban, suburban, rural, and remote settings. Harmony must now be defined in terms of both natural and built environments. Furthermore, in most parks, the concept of harmony must encompass ecological as well as aesthetic considerations. Harmonious relationships of facilities with park landscapes should now include, in addition to concerns about form, color, and materials, concerns about issues such as landscape degradation, preservation of natural processes, and protection of biological diversity.

WHY IS VISUAL QUALITY IMPORTANT?

National parks, monuments, recreation areas, and all other NPS units collectively represent the natural, historic, and cultural heritage of the country. These resources have been entrusted to the care of the National Park Service because they constitute the national heritage to be preserved for future generations. Ever increasing levels of visitation and continuous public support for expansion of the system provide evidence of their importance to the American public. They are sources of inspiration, enjoyment, recreational opportunities, and information about natural and cultural history and the beauty of nature.

Most visitors expect to have quality experiences in both natural and developed landscapes. Visitors' experiences are influenced by their previous national park visits and expectations for present and future park visits. Park experiences involve all of the senses – seeing, hearing, touching, smelling, and even tasting. Vision is, however, the dominant sense for the majority of park visitors.

What visitors see can influence how they feel about and behave in the park. For example, volunteer paths proliferate and landscape degradation occurs when steps are not taken to restore such areas. Once one volunteer path is estab-

lished, others often appear in rapid succession. Visitors may read the landscape as one in which it is permissible to wander at will, on or off established pathways.

The visual quality of both natural and developed areas in parks is an important factor in providing for quality experiences. This becomes even more salient when considered in reference to recognized patterns of use of many park visitors, patterns which involve spending the majority of their time in the developed areas of parks.

RESEARCH ON DEVELOPED AREA VISUAL QUALITY

Visual quality of landscapes has been the focus of an impressive body of research for nearly three decades (Zube, Sell, and Taylor 1982; Smardon, Palmer, and Fellman 1986). Much of it has been undertaken in response to the requirements of the National Environmental Policy Act of 1969 and the management and planning activities of the U.S. Forest Service and Bureau of Land Management. The legislative requirements for public participation and the associated desire to understand public perceptions of visual quality aided this natural resource-oriented research initiative.

During the past decade, there has been increased attention to rural landscapes (Belknap 1987). However, considerably less research has been done on the visual quality of built or developed landscapes or on the harmonious relationships between new and old structures or between new structures and natural or cultural landscapes.

Harmony, as a descriptor of visual relationships, is not a prominent term in visual quality research literature. Nevertheless, harmony of human interventions in forests and rangelands has been an implicit objective of Forest Service and Bureau of Land Management visual resource management programs. Whether the problem has been one of planning a timber harvest, range rehabilitation project, or a new ski area, the common goal has been to ensure harmony with the existing natural landscape.

There are a number of terms used to describe the relationships of new structures with existing buildings and landscapes. Many are similar to, if not synonymous with, harmonious. These include appropriateness, compatibility, congruence,

context, fittingness, and order. The issues that have been addressed in this research include compatibility among different land use activities, fitting structures into historic districts, relationships between different architectural styles (for example, between modern and post-modern), and appropriateness of residential structures in shoreline and forested landscapes.

The compatibility of different land uses or the visual congruence of adjacent land uses is a significant predictor of the scenic values of landscapes that consist of both developed and natural areas (Hendrix and Fabos 1975). Compatible land uses tend to be those that are similar in both kind and intensity of use. For example, farm and forest are likely to be perceived as more compatible with each other than either farm or forest with subdivisions or industrial areas.

Designers and nondesigners are in frequent disagreement about the perceived meanings of buildings and the appropriateness of new buildings inserted among existing older structures (Groat 1984). Some research findings suggest that nondesigners are more concerned than designers that buildings appear appropriate to building type and use. This research suggests, for exam-

ple, that schools, churches, banks, visitor centers, and administration buildings ought to reflect their respective uses in the images they project. Buildings are perceived as more in context and more harmonious when the design transition from old to new buildings is evolutionary rather than revolutionary. Facade treatment and details are important elements in this transition and are significant for communicating to nondesigners a sense of appropriateness and harmony.

A small body of research has explored the meanings people associate with buildings and landscapes and also the effects that different meanings can have on perceptions of building appropriateness (Groat 1982) and scenic quality (Nasar and Julian 1985). For example, the perceived scenic quality of a body of water can be lower when it is called a reservoir than when it is called a lake, even though it is the same body of water. The same is true of a forest landscape when it is called a tree farm rather than a forest (Hodgson and Thayer 1980). A vacation lodge may also be perceived as more appropriate for a coastal landscape than a lumber mill, suggesting that the appropriateness of a building or land use activity relates in part to its landscape context (Wohlwill 1978). Other research has shown that



Figure 5: Andersonville National Historical Park Visitor Center/Museum: The form and materials derive from the simple brick buildings, from the granite, bronze, and marble monuments in the park, and from the thematic elements common to prisoner-of-war stories. (Illustration by Jeffrey Joyce)

there are important elements of buildings that contribute to the perception of appropriateness in specific landscapes or that link them visually to traditional local (vernacular) buildings (Low and Ryan 1985). Obtrusiveness, as in bright colors or building materials of an industrial rather than natural nature (e.g. aluminum versus wood) can reduce visual quality and the perceived appropriateness of buildings in natural landscapes (Vining, Daniel, and Schroeder 1984).

LOOKING BACKWARD AND FORWARD

The brief historical review of facilities design presented here indicates a consistent concern with harmonious relationships between visitor service, administrative, and maintenance developments with park resources. There have, however, been lapses in the requisite monitoring of facility designs that allowed questionable projects to be built – lapses associated with heavy workloads and deadline pressures.

Good's observations on attributes of design that facilitate harmonious relationships bear striking similarity to many of the attributes found in historic district and new community design guidelines. The findings from the research in environmental perception also partially explain the success of the rustic design tradition and its regional expressions. They indicate that developments in natural areas are more likely to be perceived as harmonious when the visible construction materials relate to the surrounding landscape. They indicate that replication of meaningful dominant building elements and forms derived from traditional local (vernacular) structures can enhance the perception of appropriateness or harmony, and that structures in developed areas are more likely to be perceived as harmonious when colors are not in sharp contrast with natural landscape colors. There should be a continuity of form, materials, colors, and details among the structures within the area.

Research on visual quality also suggests that names or labels can impute meanings to structures and developed areas and can affect observers' perceptions of the visual quality and the appropriateness of the facility or area. Visual harmony or appropriateness is relative to the perceived meaning of the structure or development and the landscape context in which it exists. Labels can deceive or inform the visitor.

The history of growth and expansion of the park system (in both the range of resources now protected in parks and the diverse environmental contexts within which parks exist) dramatically illustrates the challenges in designing harmonious park facilities. The concept of harmony must link visual quality of developed areas with the biological and physical well-being of the park landscapes. In other words, harmony must link ecological health with visual satisfaction.

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WHO THINKS WHAT ABOUT THE VISUAL QUALITY OF THE BUILT ENVIRONMENT IN NATIONAL PARKS?

James L. Sell & Ervin H. Zube

I'm not an architect but I know what looks good in a park setting.

1989 NPS survey respondent

SO WHO CARES?

Who cares about the buildings in Yosemite? Do most people go beyond the visitor center? Don't most people go there to look at the falls, or Half Dome, or head off into the backcountry – so why worry about the staging areas where they camp, buy their film, or look at interpretive exhibits?

Discussions with park personnel around the country indicate that they care. There is a growing awareness among NPS personnel of the importance of the built environment – that visitor experience can be as affected by visions of inharmonious site development, structures, and maintenance as by the environmental resource the park was created to protect. Professionals at the NPS Denver Service Center were among the first to recognize the problem. They felt that it was important to systematically assess the degree to which this was viewed as an important issue and to get park professionals' views on what could be done.

THE SURVEY

In spring 1989 a mail survey was sent to NPS administrators, managers, and staff to ask how they felt about the built environment in the national park system. Questions were posed about the significance of harmonious designs, recommended requirements for design themes and guidelines, and the importance of visual quality in the parks. Specific issues addressed included identification of important elements of harmonious designs, design themes, and design guidelines, why design themes and visual quality are important, the importance of built elements that contribute to visual quality, attitudes about who should be responsible for ensuring visual quality in parks,

and the identification of parks that represent the highest and the lowest visual qualities in the system.

Questionnaires were mailed to

superintendents and selected staff from a representative sample of 169 parks

a sample population of designers and planners at the Denver Service and Harpers Ferry centers

administrators and selected staff in the regional and Washington D.C. offices

A total of 1,179 questionnaires were distributed, 1,031 to parks and 148 to service centers, regional offices, and the Washington Office. A total of 755 questionnaires were returned, yielding an overall response rate of 64%. The response rate for the centers and the regional and Washington offices was 90% and for the parks it was 60%. All told, 70% of the park superintendents responded and 96% of the parks in the sample returned one or more questionnaires. The directors, associate directors, and center managers were the group most highly represented. The people whose professional roles are most directly involved in planning and designing the built environment (architecture, engineering, landscape architecture, and planning) sent in nearly half of the responses. The next highest response rate came from maintenance personnel and facilities managers. The positive response to the survey is a strong indication of the extent to which park personnel have seen and thought about this problem.

Survey Findings

The responses to many questions posed in the survey indicate a very high level of agreement among respondents about the importance of the visual quality of built environments in parks. For ease of communication, collective responses from park personnel are referred to in the following

text as park unit responses and those from regional offices, centers, and Washington are referred to as regional/center responses.

Importance of Visual Quality

How important is the visual quality of developed areas in parks? Only 8 of the 614 (1.3%) park unit respondents thought it was not important. The mean value for all respondents (a total of 749), using a five-point scale (1 = not important at all to 5 = extremely important) was 4.46. The importance of visual quality to the visitor's experience was rated somewhat lower on the same five-point scale at 4.06. Reasons given for why developed area visual quality is important are listed in rank order in table 1. The highest rated reasons are visitor expectations, NPS responsibility for setting high standards, and the need for consistently high visual quality standards in all parts of parks that are accessible to the public.

TABLE 1: REASONS WHY DEVELOPED AREA VISUAL QUALITY IS IMPORTANT

Mean Value*	
Visitors expect park environments, both natural and cultural, to consistently be of high quality	4.21
The National Park Service should set the standard for the nation for visual quality in both natural and developed areas	4.16
All areas and elements that are accessible to the public should be of equally high quality	4.13
Visual quality enhances educational and interpretive programs	4.07
Enhance public support for the NPS	3.94
Most visitors accept what they see in parks as being high quality, thus the NPS has the responsibility to see that it is so	3.73
Most visitors spend most of their time in developed areas	3.60
* Based on a 5 point scale: 1 = lowest, 2 = highest	

Many respondents added written comments to further explain their answers to the fixed response questions. For example, several respondents seemed rather surprised that the question of visual quality ever came up, and one noted that, "This seems to be a kind of motherhood and apple pie kind of question. Who could think visual quality was unimportant?"

Most comments, however, underlined the need for stronger consideration of the visual environment, as in this example:

We are in the business of protecting scenic visual quality. Our structures should fully complement our resources in quality.

There is a strong sense of professional mission that was expressed in such phrases as "sense of pride," "high standards," "stewardship," "respect for integrity of cultural resources," or "quality appropriate to the significance of a park area." That attitude was most certainly apparent in the following –

We have one of the seven wonders of the world in our backyard. Our developed areas should have some class!

I plan – design interpretive media for the parks. Why should I maintain high standards for exhibits that will go into a substandard developed area? That's why when planning my wayside exhibits I offer lots of advice about landscaping, signs, obtrusive elements, colors of structures nearby, walking surface, trash cans, vista clearing, etc.

While one respondent said that the notion that the National Park Service should "set the standard for the nation" was "pompous," many others were aware of the vital role of park visual quality in enhancing visitor experience and demonstrating the NPS commitment to stewardship principles:

Developed areas should not distract visitors from enjoying park resources.

People treat areas of high quality with more respect and take better care of them.

The care given to visual quality, especially in developed areas, demonstrates to the public the commitment that management and park employees have to the stewardship of the park.

The perceived importance of elements that contribute to visual quality is presented in table 2. One element stands out among all of those listed as being singularly important – the overall quality of maintenance. Sign design, colors, consistency in interpretive exhibits, and appropriate plantings are also seen as very important. Those elements seen as least important are repetitive building forms, uniform pavement surfaces, and uniform pavement edges. The very low rating of uniform pavement edges is also interesting in light of the observational evidence in many parks that uneven and raveled edges are obvious indicators of inadequate maintenance and invitations for people on foot and in vehicles to stray from the intended travel way and expand volunteer paths, drives, and parking areas.

TABLE 2: IMPORTANCE OF BUILT ELEMENTS IN MAINTAINING VISUAL QUALITY

Element	Mean Value*
Overall maintenance quality	4.58
Consistency in sign designs	4.27
Compatible colors	4.11
Consistency in interpretive exhibits	4.11
Appropriate landscape plantings	4.06
Continuity of building materials	3.94
Similar trailhead designs	3.72
Repetitive building forms	3.51
Uniform pavement surfaces	3.50
Uniform pavement edges	3.28
* Based on 5 point scale: 1 = lowest, 5 = highest	

Each respondent was asked to identify the two parks "in the entire national park system . . . that have the highest developed area visual quality" and also two parks that have the lowest developed area visual quality.

Park/unit responses listed 187 different parks in the highest visual quality category and 161 in the lowest category. Regional/center responses listed 51 parks in the highest category and 72 in the lowest. Table 3 lists those parks perceived by at least 20 of the respondents to have the highest and the lowest developed area visual quality. There are significant similarities among most units in both sets of parks. Developed areas in most of the units in the good parks list tend to have buildings constructed of local or natural materials, forms that are reminiscent of traditional local structures, and consistency of design expression throughout the developed areas. In contrast, those units identified as representing low developed area visual quality can be generally characterized as displaying a lack of continuity in design forms and building materials, and frequently had areas developed over long time periods when architectural styles varied and didn't take inspiration from local, traditional forms.

TABLE 3: PARKS WITH HIGHEST AND LOWEST DEVELOPED AREA VISUAL QUALITY

(N = 386)			
Highest Visual Quality	N	Lowest Visual Quality	N
Blue Ridge Parkway	49	Grand Canyon	124
Glacier	28	Yellowstone	69
Great Smoky Mountains	27	Yosemite	42
Shenandoah	24	Gateway	36
Yellowstone	22	Gettysburg	25
Independence	20		
Mesa Verde	20		
Pecos	20		

The appearance of Yellowstone National Park in both lists shows graphically the disparity of developed areas within some parks and the varying degrees of visual coherence among and within those units. For example, the development at Mammoth Hot Springs, while diverse in style, has a fairly consistent scale and coherent groupings of buildings of similar style in relatively discreet areas. In contrast, the development around Old Faithful Lodge, while having some degree of uniformity of materials, has buildings of markedly different styles, scales, and facades, and notable contrasts in the amount of detailing on the buildings. One NPS critic stated that a visitor to Yellowstone had commented that it was too bad about what a developer had done to Grant Village. It wasn't a developer, it was the National Park Service and the concessioner.

Another visitor summed up a general impression of Yellowstone by saying, "It's a shopping mall!"

Harmonious Relationships

Concern about the harmonious blending of park structures with park resources – both natural and cultural – has figured prominently in discussions and writings about park planning and design since the establishment of the National Park Service and is reiterated as an element of NPS policy in the 1988 *Management Policies* manual. When asked how important this policy was, the response was overwhelming – the vast majority felt built environment harmony was very or extremely important. They were concerned about harmony with the surrounding park resources and within the built environment itself.

Table 4 presents the combined park unit and regional/center responses to inquiries about which elements of new construction are important in creating harmonious relationships with existing natural environments. The three highest rated elements indicate strong support for traditional definitions of harmonious designs, colors that blend with the surroundings, traditional building forms, and natural materials. Color, traditional building forms, and natural materials have also been identified as important elements of buildings that are compatible with their surroundings.

Table 5 indicates which elements are thought to contribute most to harmonious relationships with existing buildings. As is evident from the mean

TABLE 4: IMPORTANCE OF NEW BUILDING ELEMENTS FOR CREATING HARMONIOUS RELATIONSHIPS WITH SURROUNDING NATURAL ENVIRONMENTS

Elements	Mean Value*
Colors that blend with the surroundings	4.35
Buildings that reflect traditional forms and styles	4.10
Natural materials	4.05
Rustic designs	3.29
Building forms that express functions they house	3.27
Contemporary or modern designs	2.55
* Based on a 5 point scale: 1 = lowest, 5 = highest	

TABLE 5: IMPORTANCE OF NEW BUILDING ELEMENTS FOR CREATING HARMONIOUS RELATIONSHIPS WITH EXISTING BUILDINGS

Elements	Mean Value*
Continuity of landscape treatment	4.12
Maintaining consistent colors	4.04
Building shape and mass that relates to existing structures	4.00
Similar construction materials	3.99
Consistent design of signs, benches, lighting, and other sit furniture	3.95
Similar roof shapes	3.89
Similar facade treatments, size and spacing of windows, proportions of window to wall	3.78
Repeated building detail such as cornice and window details	3.53
Based on a 5 point scale: 1 = lowest, 5 = highest	



Figures 1-3: Lack of continuity in design form or materials among the Yellowstone National Park Hotels – Mammoth Hotel, (c. 1883), top; Lake Hotel, (c. 1890), middle; and Old Faithful Inn, (c. 1903), bottom. The neo-classical image of Lake Hotel is a result of remodeling in 1904-05. (Photographs by National Park Service)



values for each element in the table, all were thought to be important to some degree. The two lowest ranked elements suggest a difference between park personnel and the public. Facade treatment and details are among the most important in lay persons' perceptions of the fittingness of new buildings with old.

The open-ended comments of park service personnel revealed a great deal about the kinds of issues that were appearing in the field. Visual quality includes such factors as tastefulness, compatibility with historic themes and the surrounding natural environment, local values, conservation, and several more design-specific ideals. Table 4 has already documented the importance of designs, colors, and materials that harmonize with the natural environment. One person also commented that the "type of design (modern or rustic) is not as important as the tastefulness of any style." Several people pointed out the importance of designs appropriate to historic styles, especially in historic theme parks:

In historical areas, historical values must take precedence over 'natural.'

Except in very special cases, it is critical not to duplicate historic structures or styles. This was an issue addressed by several respondents:

Except for historic existing structures, new structures should not possibly be confused with historic structures.

Another school of design says build the best for the period, but be compatible with the past – not just replicate.

One other person felt that the local history of the region is also important for consideration, stating

Buildings put into older established areas should have a design consistent with historic design elements representative of that area.

Several respondents also stressed the need for design in harmony with local character, observing that

Design elements for new buildings should reflect architectural and aesthetic values of the specific park or locale rather than reflect 'traditional'

Park Service values which are more broadly based.

Existing buildings, if used for comparison, should be appropriate and representative of the park or region.

New construction can be bold or innovative, but it should clearly relate to the desired theme and/or the park and region.

Above all, there is an awareness that each situation has its own opportunities and limitations, and design should reflect the local situation:

Frequently in natural parks, particularly new ones but not in historic areas, 'harmonious relationships' are relative. I believe a contemporary or modern design . . . (is) as appropriate and effective as those that 'reflect traditional (Park Service) values'.

The solution is completely dependent on the circumstance, without local style, tradition can be 'invented' and a contemporary solution might be selected with or without local materials.

In one other case, the lack of attention to the existing environmental conditions and failure to use regionally appropriate designs created a situation that will cost a great deal to correct:

The architectural motif for our park is contemporary or modern. It has failed because of poor design. Twelve years after construction, we are now having to put hundreds of thousands of dollars into rehabilitation. The local culture knew how to design for this climate – the NPS designer failed.

Additionally, as another person pointed out, visual harmony might also be supplemented with conservation themes:

In addition to harmony – minimizing above ground area should be stressed along with energy conservation.

Other people commented on the significance of properly siting buildings, advance planning for building compatibility, design themes, design for handicapped accessibility, and the need to control parking. As noted by one park respondent,

The amount of parking provided at sites and structures is too often overdone. It is self defeating. Separation from the site best preserves the values of the site.

It is also important to look beyond visual compatibility, especially regarding function and maintenance:

No matter what the building, it should not be difficult to maintain. I've seen wonderful new buildings designed and built. But due to lack of funds, the parks are unable to maintain them.

Consistent use of design in signs, etc, is easier for the visiting public. They will remember the design of the bathroom facilities and (that) will make locating these structures easy for them during their stay.

Signs need to be consistent, but they need to do a better job of directing and notifying the public of facilities.

Design Themes

All units in the national park system were created because some feature or quality was thought to be of national importance. All parks – from Mesa Verde to Manassas to Mount Rainier – conjure up specific images in our minds. These images ought to be easily tied into design themes to enhance the quality that justified the park in the first place. It is NPS policy for each park to have a design theme. Yet in 1989 only 17% of the parks in our sample have any formal, written themes (55% had none, another 28% of the respondents didn't know if they had them or not).

While most parks don't have design themes, most park personnel think they *should* have them. Overall, there was very strong support indicated for the design theme concept and its contribution to the visual quality of developed areas. Eighty percent of all respondents to this question indicated that a theme was very or extremely important for developed area visual quality; 18% viewed it as important; and only 2% considered it not very or not at all important. On the five-point rating scale used for this question, the mean value for all respondents was 4.17, which is quite high.

Park unit and regional/center respondents do think design themes are important. There are two primary reasons: themes can provide a sense of unity within and among developed areas in parks, and they can ensure the continuity of the park image over time. Comments about the importance of design themes included the awareness of the role of themes in interpretation and the total visitor experience.

The design theme creates the environment that is the first step in park interpretation.

In our park, the structures are not the greatest resource. A well-designed development would enhance, not detract, from the visitor experience.

Perhaps most important of all, a design theme has to relate to the purpose of the park – why it is there. One respondent commented:

This is dependent upon the park, the primary purpose of the area . . . This deserves discussion and review. We've done a number of parks a real disservice by structures that are engineeringly sound but excessive or inappropriate to the site or the park as a whole.

As indicated previously, there were very few respondents who felt that design themes were unimportant. The responses indicate that there was considerable variability on this issue, beyond the approximately 20% that felt the public wouldn't notice the difference or that the park would have difficulty implementing a design theme. Several people commented that their particular parks had too much variety to be covered by one theme, although they voiced no objections to developing a set of themes. Others thought the built environment in their parks was too insignificant to rate consideration. There was also one person who stated, "The superintendent is going to do what he likes no matter what a design theme says."

Also important were park unit respondents' attitudes about the appropriate basis for design themes in their parks. Of particular interest is the consistency of these responses with those that addressed the issue of harmonious structures and that placed emphasis on natural landscapes and traditional/local buildings. The responses stress the appropriateness with the natural landscape (36.7%), historical regional buildings (18.0%),



Figures 9-12: Continuity of forms and materials from historic Rustic Cabin (top) and Mabry Mill (middle left), to contemporary Devil's Courthouse Tunnel Portal (middle right) and the Peaks of Otter Gasoline Station (bottom), along the Blue Ridge Parkway. Old and new buildings express traditional Appalachian culture. (Photographs by National Park Service)

traditional local building styles, historic events or people (13.4%), or the surrounding cultural landscape (11.4%). Comments also included awareness of the need for flexibility – that there are several themes that would fit an individual park, and planning should avoid rigid prescriptions.

Design Guidelines

The next logical step after deciding on design themes is to develop design guidelines to ensure that those themes are realized in the developed areas of the parks. A design guideline provides instructions about the use of specific details to enhance the overall theme or to blend harmoniously with park environments. There is overwhelming support for the development of such guidelines.

When asked whether most parks should have design guidelines that specify building forms, colors, details, and site features to increase harmony in designs for new structures and for rehabilitation and renovation of existing structures, 83.6% of all respondents answered yes, 9.1% responded no, and 6.8% had no opinion. Responsibility for producing design guidelines should rest with individual parks and service centers and to a much lesser extent with regional offices and the Washington Office.

Accountability and Responsibility

Park unit respondents were asked what level of responsibility should be associated with the various management positions in parks. As indicated in table 6, the superintendent, park engineer, landscape architect or planner, and chief of interpretation are thought to be the most responsible because of the nature of their professional responsibilities. All personnel listed are felt to have some responsibility; only the administrative officer ranked low.

Regional/center respondents were asked how parks should be held accountable for developed area visual quality. These administrators, designers, and planners favor greater design assistance for parks, having regularly scheduled evaluations

using operations evaluations and the superintendent's annual review as basic tools, and providing staff training programs. Least important, although still slightly higher than average, is the response of visitors based on their experiences in the developed areas of parks.

TABLE 6: WHAT SHOULD BE THE LEVEL OF RESPONSIBILITY FOR DEVELOPED AREA VISUAL QUALITY?

Position	Mean Value*
Superintendent	3.92
Engineer, landscape architect or planner	3.89
Chief of maintenance/facilities manager	3.80
Chief of interpretation	3.46
Resource management specialist	3.26
Chief ranger	3.03
Administrative officer	2.35
*Based on 4 point scale: 1 = none, 2 = low, 3 = med, 4 = high	

CONCLUSIONS

Looking back at the survey results, two conclusions are obvious – there is overwhelming consensus about the importance of built environmental quality in the national parks, and many NPS personnel have already put much thought into this issue. It is evident that the will and talent to take action exist within the professional ranks at individual parks, regional offices, service centers, and the national office. The questions to be faced next are those of how and who, rather than whether and why.

A coordinated effort should be made to provide parks with assistance in developing design themes and guidelines and to provide staff training opportunities, as well as to delineate clear lines of responsibility and accountability.



RED BRICK AND ONLY SO TALL: LAW, AESTHETICS, AND DESIGN GUIDELINES

Carol Whittaker & Ervin H. Zube

INTRODUCTION

The visual quality of developed areas is an issue in national parks as well as in towns and communities across the country. The methods used to regulate visual quality in community settings can provide concepts and ideas for NPS efforts to promote and protect visual quality throughout the system. This issue, as it relates to towns and communities, is addressed in the literature on law and aesthetics and in the professional design literature, particularly that addressing design guidelines. Visual quality is a contextual issue, both in the conservation of existing visual conditions and in the design of new developments that are to be compatible or 'in harmony' with the existing developed or natural visual context.

NPS policy, dating from the earliest years, established the precedent for design in harmony with existing landscapes. Numerous communities nationwide have also initiated actions to protect the visual quality of selected valuable environments such as historic areas, central business districts, and residential neighborhoods. The methods used outside the park system to control the appearance of these built environments usually entail some form of design criteria or design guidelines and a review board to pass judgment on the appearance of proposed developments or modifications. Criteria or guidelines provide limitations and suggestions for design solutions that will achieve or maintain an existing or desired visual character. There are also new concepts being developed and applied that offer new approaches to protection of visual quality in developed areas.

Design guidelines are frequently incorporated into local zoning ordinances that influence the visual quality of neighborhoods by placing limitations on elements such as land use and building setbacks. Incorporation of guidelines into ordinances gives them the power of law. In the purpose or introductory statement of many of these ordinances, phrases such as "relate new development in harmony with present character," or "re-

quire new development to be compatible with existing character" are typical.

HISTORY OF AESTHETICS IN LAW

The law can be considered a reflection of prevailing social values. Far from being static, it changes as public values change. The increasing importance of aesthetic values to the general public is illustrated both in federal legislation and in the reasoning in judicial decisions.

The dates and frequency of mention of scenery conservation in federal legislation demonstrate its increasing importance to the public. Table 1 lists dates, titles, and excerpts of selected legislation that mention aesthetic values, starting with the 1864 Yo-Semite and Mariposa Big Tree Grant and the organic act of 1916.

Nearly fifty years after the organic act, the Highway Beautification Act was a product of the environmental movement and the White House Conference on Natural Beauty. It focused on a different kind of landscape. This legislation was aimed at protecting the view along the system of interstate highways. It focused primarily on controlling billboards and junkyards – the prevention of ugliness rather than the conservation of scenery. Unlike the organic act, which applied to lands under federal management, the Highway Beautification Act was applied to lands or property in private ownership. While it did not regulate the use of those lands, it did authorize funding to pay for the removal of billboards or the screening of junkyards.

In 1968 Congress passed both the Wild and Scenic Rivers Act and the National Trails System Act, both of which provided for protection of areas with scenic values. The National Environmental Policy Act of 1969 contributed significantly to protecting, or at least considering, aesthetic values. It applies to all projects on federal lands, as well as those on private lands that involve the use of federal funds. Later federal legislation, such as the

Coastal Zone Management Act of 1972 and the 1976 Federal Land Policy and Management Act also included protection of aesthetic resources.

TABLE 1: AESTHETICS IN FEDERAL LEGISLATION

1864	Yo-Semite and Mariposa Big Tree Grove Grant
1916	Organic Act: "which purpose is to conserve the scenery. . ."
1965	Highway Beautification Act: "to promote the safety and recreational value of public travel, and to preserve natural beauty"
1968	National Trails System Act: ". . . trails should be established . . . secondarily within scenic areas"
1968	Wild and Scenic Rivers Act: ". . . selected rivers . . . which possess outstandingly remarkable scenic . . . values shall be preserved in free-flowing condition . . ."
1970	National Environmental Policy Act of 1969 "to ensure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings"
1972	Coastal Zone Management Act: "the coastal zone is rich in . . . esthetic resources" "important . . . esthetic values in the coastal zone which are essential to the well-being of all citizens are being irretrievably damaged or lost"
1976	Federal Land Policy and Management Act: "the public lands shall be managed in a manner that will protect the quality of . . . scenic values"
NOTE: the U.S. Forest Service derives its mandate to conserve aesthetic resources from the Forest and Rangeland Renewable Resources Management Act and the Multiple Use Sustained Yield Act, which require multiple resource management and from the National Environmental Policy Act, which specifically mentions consideration of aesthetic resources.	

Legislation has also been enacted that deals with visual quality at the local level. Among the earliest local efforts was the use of deed restrictions to control the design of houses in Coral Gables, Florida, in the 1920s. They required that houses conform to specified architectural styles and were

later incorporated into the zoning ordinances of the town. They are still in place and are among the most restrictive in contemporary communities. In addition to specifying building styles, they specify colors, building materials, and roofing styles, colors, and materials.

A decade later, design control ordinances were enacted in Charleston, South Carolina, and the Vieux Carre district of New Orleans to deal with aesthetic protection in historic districts. Both ordinances were concerned with the appearance of modifications to existing structures and with new buildings within the designated historic districts. The ordinances in Charleston have not been challenged in court, but those in New Orleans have. They have become national precedents for the legality of design restrictions in historic districts.

JUDICIAL PRECEDENT

The judicial branch of government reviews the legitimacy of laws enacted by the legislative arms of government at the local, state, and federal levels. Trends in consideration of aesthetic issues, similar to those found in federal legislation, can also be seen in judicial decisions. The cases that illustrate these trends apply primarily to the executive power of local governing agencies. For the most part they deal with the use of "police power" to regulate the use of private land, a power which traditionally has been justified as protecting public health, safety, or general welfare.

At the turn of the century most courts refused to consider regulating the use of private land based on aesthetics. The courts have, however, gradually moved towards accepting aesthetic regulation under the guise of health and safety issues, moved to including aesthetics with health, safety, or general welfare issues, and have usually stopped just short of regulation based on aesthetics alone. Table 2 highlights several cases concerned with aesthetic regulation and illustrates the justifications and the incremental process of courts' movement toward regulating appearances on private lands.

In addition to the generic judicial reviews of aesthetics illustrated in table 2, courts have also ruled on challenges to specific ordinances containing design guidelines. The earliest of these

cases, the so-called New Orleans triumvirate, decided the legality of design restrictions applied to private property in the Vieux Carre district. The fourteenth amendment to the Louisiana constitution established both design guidelines and a commission to review proposed modifications or additions to buildings in the district with the purpose of protecting its visual environment.

**TABLE 2: AESTHETICS IN JUDICIAL DECISIONS;
BEAUTY AND THE LAW**

1905	Passaic v. Patterson Bill Posting Company (62 a.268): "aesthetic considerations are a matter of luxury and indulgence rather than necessity"
1914	Thomas Cusack Co. v. City of Chicago (108 N.E. 340) upheld regulations of billboards because, "they might fall over and hurt somebody, criminals might lurk behind them or immoral activities might occur behind the friendly shelter of a billboard"
1932	Perlmutter v. Greene (182 N.E. 5): "beauty may not be queen but she is not behind the pale of protection or respect, she may at least shelter herself under the wing of safety, morality or decency"
1954	Berman v. Parker (348 U.S. 104): "it is within the power of the legislature to decide that the community should be beautiful as well as healthy . . ."

The guidelines and commission decisions have been challenged in court three times. Two decisions have supported the use of design guidelines outright. One dealt with the enlargement of a lavatory in a courtyard. The court interpreted the commission's control over the exterior of buildings to cover all exterior surfaces including sides, rear, and roof. The second, in 1941, upheld the commission's decision to order the removal of a large sign at a gasoline station within the district, even though the station was a modern building not of architectural and historical value. In describing the decision, Williams notes the court's recognition that the visual environment of the Vieux Carre derives "not only from individual worthy buildings, but from the scale of buildings, their harmony with each other, and the combination of buildings and open spaces" (1975). In the third case, the city attempted to require a property owner to remove a plexiglass roof placed

over the courtyard of a restaurant in the historic district. While the decision upheld the use of existing design guidelines to restrict private property use, it could not be enforced since the court found substantial evidence of nonenforcement nearby (the commission had not enforced regulations in the past, hence constitutional requirements for equal protection under the law were not met). This is noteworthy as an example of a case involving the use of design guidelines that was decided on points of law outside of aesthetic regulation.

CONTEMPORARY LAW

Precedents established in the historic districts of Charleston and New Orleans and in new subdivisions like Coral Gables have carried forward. Local ordinances that regulate the use of private property for the public good have been a popular method to protect aesthetic values on private property. A review of a sample of zoning ordinances in the library of the Planning Advisory Service in Chicago suggests that slightly more than 10% of the ordinances on file contain design guidelines. The dates of their enactment, from 1961 to 1988, clearly indicate that design guidelines were increasingly being used to protect and enhance aesthetic resources. By five-year increments, enactments were: 1961-65 - 1, 1966-70 - 3, 1971-1975 - 7, 1976-80 - 12, 1981-85 - 20, and for the three-year period of 1986-88 - 11.

Although historic districts predominate, there is clear evidence that design guidelines are also used in contemporary communities (Whittaker 1989). The review referred to above also categorized design elements present in 62 of the ordinances. The most common or frequently cited design element was building material. Color, landscape, and building height were the only other elements mentioned in more than 50% of the sample studied. Texture, scale, roof, signs, and windows and doors were the next group of frequently cited elements.

An important component in the consideration of design guidelines is that of implementation. In 71% of the ordinances reviewed, a board or review committee, usually composed of community volunteers, was established to determine compliance with the guidelines. The majority of the remaining ordinances relegated review to professional staff of the community.

JUDICIAL REVIEW

In addition to the changing judicial attitudes towards aesthetics illustrated in table 2, courts have also decided suits related to the use of design guidelines in contemporary, nonhistoric areas of communities. The primary issue raised in these cases is the subjective nature of the guidelines. The controls in question are most frequently intended to limit the appearance of new development so that existing visual character is preserved, although some are designed to prevent monotonous look-alike development, such as large apartment complexes or rows of tract housing.

The majority of the cases relate to guidelines that attempt to maintain harmony or compatibility of new developments with an existing, defined visual context, whether built or natural.

Courts have decided cases in support of the use of design guidelines as well as finding against them. Requiring compatibility with existing visual context, especially if the ordinance or supporting documents identify the context, seems to be most defensible. This approach protects the courts from having to decide what constitutes beauty. However, the variety of opinions, both upholding and overruling ordinances with design guidelines, does lend a note of caution to their use. The clearest message seems to be that being more specific is better, both for the appearance controls themselves and for the definition of the context. The courts seem to agree that aesthetic surroundings are a legitimate public benefit for regulation, but they will not arbitrate nor permit a design review board unlimited rein in determining what constitutes harmonious design.

DESIGN GUIDELINES IN THE LITERATURE

The literature that discusses design guidelines varies widely. Some articles praise their use in preventing inappropriate or incompatible architecture; other articles condemn them as unnecessary. The criticisms raised against the use of design guidelines include:

- they limit the creative expression of designers
- they may evoke superficial compatibility or copycat designs

- they do not provide a clear example or definition of context for compatibility
- together with design review they increase the costs of designs
- review boards that administer guidelines do not necessarily have the competence to interpret them

Graves and Wolf (1980) raise the strongest concerns about modern architectural attempts to achieve compatibility between new and old architecture. They question modern additions or alterations to older buildings that "do not get beyond sympathetic styling or geometric alignment." They see this as a concern with mere cosmetics rather than the larger substantive issues of architecture – issues such as the relationship between buildings, between architecture and the landscape, or the symbolic and cultural aspects of architecture.

A similar, although more limited, criticism of design compatibility is expressed by Gwathmey (1987) who finds that "design review tends to applaud imitation and be very suspect of interpretation." He notes the conservative mood in our country today that tends to equate 'good' with traditional and 'bad' with modern architecture.

The use of design guidelines as limitations on creative design solutions is raised by Cox (1987). He questions the NPS requirements, documented in *The Secretary of the Interior's Standards for Rehabilitation* (USDI 1985), that stylistic continuation or replication "compromises the original and/or confuses the public". He questions whether it is not "more destructive to the original monument to have something sympathetic (which really isn't) and different in style, or to have something that defers from the existing style and scale and therefore supports the original intention."

The preceding comments from architects illustrate one level of concern about compatibility and design guidelines. They vary dramatically. Grave's and Wolf's concern speaks to whether appearance is not a superficial response to issues of compatibility between old and new. Gwathmey's more typical concern is that guidelines and design review constrain the creative expression of 'good' or even outstanding architecture. Cox questions whether in some cases replication

might not be the most appropriate expression of compatibility. The issue addressed in all of these comments is the limitations on design solutions when a design program requires compatibility between new buildings and an existing architectural context.

The second criticism of design guidelines, closely related to the first, is that guidelines provoke copycat or uninspired replication of facades. Giebner (1985) notes that early design criteria, usually in historic districts, were formulated to limit architectural exuberance, and might have been an overreaction to the problem. "Out of fear of the unknown, we opted for the comfort

of sameness. Early district criteria focused upon conventional, quantifiable visual aspects and mandated their replication. Architectural plagiarism resulted. New construction was often unimaginative, banal statements. There was cohesiveness, but it came at the expense of spirit." (Giebner 1985).

Support for replication or copycat design is given added weight when the costs that might be incurred by innovative design solutions are considered. For innovative design proposals, additional time for negotiation between review boards and designers may be required. The safe, conservative approach (what has been approved before

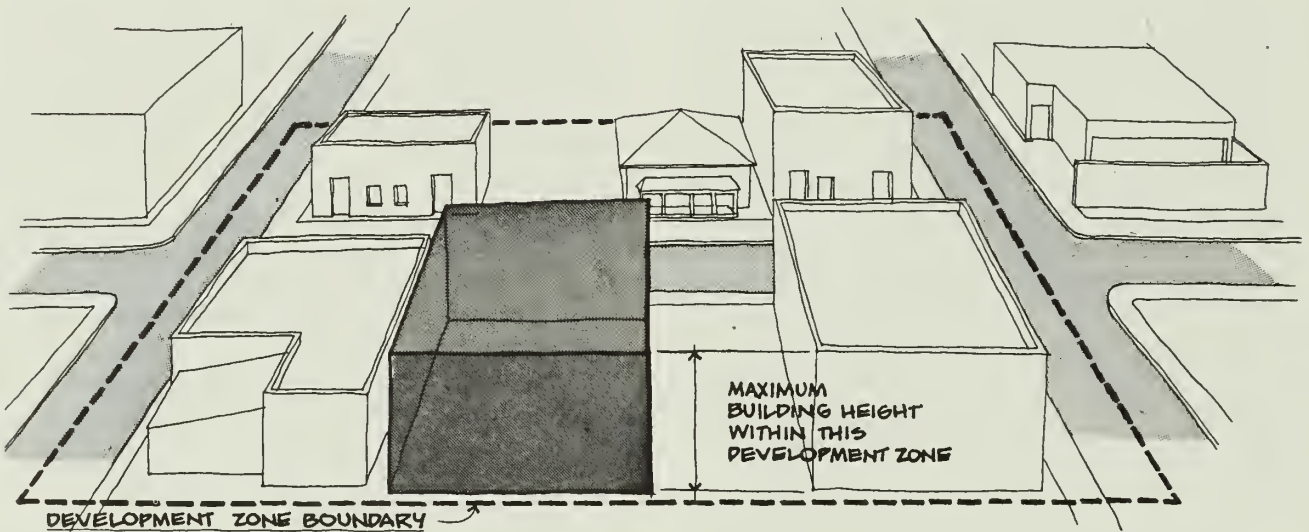


Figure 1



Figure 2

should be approved again) encourages copycat design. In a similar vein, Conron (1980), describing the safety of the conformity syndrome, writes that

Because so much new architecture is plainly out of context with its surroundings and ranges from dull to horrible, it often seems considerably safer to require adherence to a certain style or period rather than to live dangerously and set guidelines based on harmony, scale, the use of similar or compatible materials and design appropriateness to the street and city.

The third criticism raised about the use of design guidelines is related to the competency of design review boards to administer the guidelines. Typical procedures in communities entail the appointment of volunteer committees to review proposed designs to grant certificates of appropri-

ateness. The committees's composition is usually specified by profession and/or residency. Most require that at least one member be a design professional and that at least one member be a resident of the community or the district. In the zoning ordinances for communities that do not establish a special review committee, the existing planning agency or the building inspector is required to judge compliance with the guidelines.

Guidelines that suggest methods to achieve compatibility, and even criteria that require certain design elements, must be interpreted by someone or some organization. Quantifiable design elements such as height, setback, or number of parking spaces or trees are relatively easy to interpret, although still subject to the granting of variances. More difficult are design elements such as compatibility of color, texture, or rhythm. The interpretation of proposed designs illustrated by two dimensional plans, elevations, and even

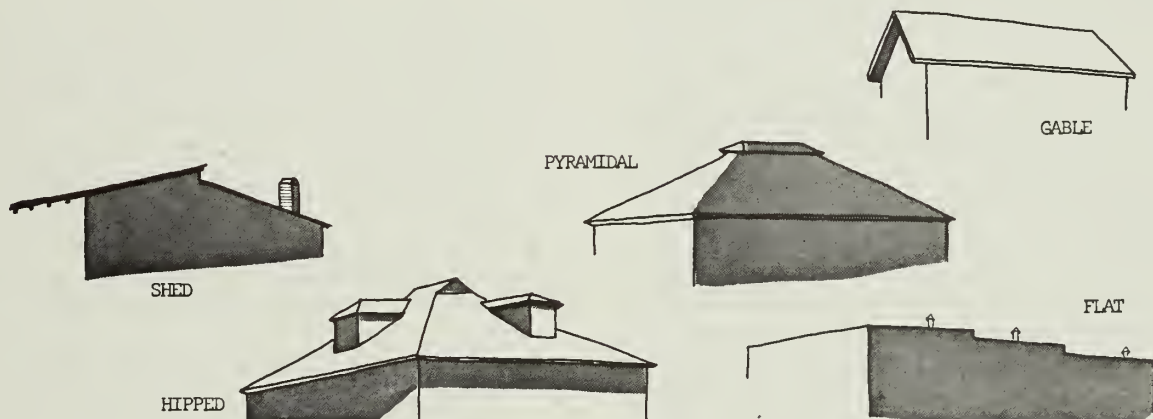


Figure 3



Figure 4

Figures 1-4: Selected design criteria specified for alterations of existing structures and for new development in designated historic districts, Tucson, Arizona. (Tucson's Historic Districts Criteria for Preservation and Development, 1971, Department of Planning, City of Tucson)

perspectives, may require a trained eye. Polshek (1980) criticizes codified community standards and review procedures as having no validity, unless those interpreting the standards have a clear understanding and sympathy for basic design principles. "The particular and detailed propositions inherent in questions of design compatibility can be approached intelligently only by those who are professionally trained in the art of building design."

Another issue addressed in the literature and raised in several judicial decisions is the definition of the existing visual context to which new development is to be compatible. Definition of context is one of the critical issues underlying design compatibility in historic districts and in contemporary communities that call for visual harmony with the existing environment. It is separate from the question of what is good design or even what is aesthetically pleasing. If the desired design solution is development that is compatible or harmonious with an existing context, whether built or natural, that context must be defined.

The historic district ordinance in Savannah, Georgia, provided one of the first models for defining context. The ordinance listed 16 design elements such as height, proportion of facades, proportion of openings, and materials and required that at least six of those elements be respected (duplicated) for new development to be compatible. In Dallas, Texas, urban design personnel developed a historic district ordinance and selected 12 criteria for inclusion. The criteria are grouped in four general categories: qualities of the block, qualities of the building form, qualities of building treatment, and qualities of facade accentuation. The number of criteria that must be satisfied for a proposed design varies according to the strength of character expressed in different areas (Lu 1980).

As indicated in table 3, the city of Tucson, Arizona, has identified criteria for both alterations to existing structures and new construction within designated historic districts. The major difference between the two is the addition in the new construction section of rhythm, which is defined as a reflection "of the proportion, pattern, and rhythm of openings" of designated historic structures in the area, and of roof types, which are specified as similarity of "configuration, mass, and materials to the prevailing historical style and period of the existing structures . . ." (Tucson 1987).

The definition of context, and consequently the establishment of criteria or guidelines for compatibility, is easiest in historic areas with a continuity of architectural style, more difficult with a mixture of building styles, and perhaps most difficult in contemporary, rural, or natural areas. Consequently, existing design guidelines are usually more detailed in historic districts where existing character is more obvious.

TABLE 3: TUCSON ZONING CODE, DIVISION 28. "H" HISTORIC DISTRICT AND LANDMARK ZONE DEVELOPMENT CRITERIA FOR ALTERATIONS AND NEW CONSTRUCTION

Criterion	Alterations	New
Height	X	X
Setback	X	X
Proportion	X	X
Rhythm		X
Roof type		X
Surface texture	X	X
Site utilization	X	X
Projects and recessions	X	X
Details	X	X
Building form	X	X

Another issue that is seldom addressed in design guidelines, but which is related to the definition of context, is the observer's perception of the context that is not a static two-dimensional phenomenon. An environment is a multidimensional experience – sight, sounds, and smells all contribute to perceptions. Past experiences and expectations can also influence perceptions of an environment. Lu (1980) notes that qualities such as materials, color, scale, and rhythm "should be visualized not merely in static but in dynamic situations, while viewing the district from different time and space perspectives." Another perspective on defining context is provided by Conron (1980) who states "new architecture should relate as much to place as it does to style . . . it must be cognizant of the city vistas and silhouettes, the natural hills and valleys. . ."

RESPONSES TO CRITICISMS

The most overwhelming response to criticisms of the use of design guidelines is in their widespread use. They are used because without them the public is not satisfied with the visual quality of development in special or significant areas. Design review, and the guidelines upon which most reviews are predicated, are frequently a response to failures of modern designers to respect a sense of place. Design guidelines in ordinances protecting historic districts are there to protect a sense of place; those in contemporary development are designed to establish a sense of place. Fitch (1987), noting the "high rents, minuscule vacancy ratios and soaring property values found in these controlled areas, suggests that it is to just such districts that the city dweller turns if he can afford it . . . (for) the sense of blessed relief that such controlled environments give him in escaping from the visual and sonic chaos of the typical uncontrolled American streetscape."

Another response to the criticism that design guidelines limit creative expression by designers is the attempt to develop guidelines that focus on design relationships rather than imitations of an existing context. This is the practitioner's response to the problem. Harrell (1980) describes the creativity and flexibility used by the Boston Redevelopment Authority as a "concept of control through identification of salient design characteristics." This involves first the definition of those essential elements of any building (or group of buildings) that must be carefully protected during development and second, a process whereby nonessential features can be the subject of negotiation. The essential elements of design relationships are those features that are most important to achieve compatibility. This approach recognizes that skillful design is necessary to use design guidelines creatively.

Responses to criticisms raised about the composition of review board memberships vary. The determining factors in the successful use of review boards appear to hinge more on procedures for the review process and recognition that design review is a process of communication. Clear guidelines with both written text and illustrations and early predesign meetings between staff and designer contribute to compatible design.

Early and frequent meetings are the best response to the criticism that design review in-

creases the cost of projects. Early communication between design review boards, community staff, and project designer while a design is still in the concept phase seems to lessen the chance that the review board will find a design grossly incompatible and consequently require expensive design modifications. Along with minimizing the increased costs involved by early communication between staff or review board and designer, higher property values and rents and lower vacancy rates could very well recoup increased design costs.

DESIGN GUIDELINES IN RURAL LANDSCAPES

The literature reviewed above deals primarily with urban and suburban settings. Rural landscapes present another challenge. While the concern for rural historic preservation has been raised as an issue, much less has been published about methods to accomplish such preservation while still permitting economically viable land uses and consequent changes in the visual appearance of rural areas.

A landmark effort in such applications is the model established by the National Park Service for Boxley Valley in Buffalo National River. The master plan for the site classified Boxley Valley as a private use zone, a designation that permitted continuing private use and some modifications of the existing landscape. As a historic district listed on the national register, existing design guidelines apply to modifications of buildings within the designated district. The innovative Land Use Plan/Cultural Landscape Report (USDI 1985) included design criteria to be applied to the district as a whole. Specifically the plan calls for:

- reasonable efforts to use a rural landscape for its historically intended purpose or compatible use that requires minimal alteration to its distinguishing natural and cultural components
- replacement of distinctive natural and man-made components should match the old in composition, design, color, texture, and other visual qualities such as weathering characteristics
- alterations and additions to the rural landscape required to accommodate a new use are acceptable . . . when such design is compatible

with size, scale, color, material, and character of the landscape (NPS 1985, Alesch 1987).

Arendt and Yaro (1987) have dealt with similar issues in their report on development patterns in the Connecticut River valley. Their study centered on the impact of single family subdivision development on established rural land use patterns. Their recommendations for maintaining visual patterns of development compatible with the context call for the clustering of houses with the retention of open spaces between the clusters. Belknap (1980), in an essay on compatibility of new buildings in rural settings, notes that the form of a building is often closely associated with a regional identity, as in saltbox and pueblo styles. Visual context provided by existing vernacular architecture should not be underestimated.

The design manual for the island of Nantucket covers rural or outlying areas as well as the towns on the island. The design guidelines for these outlying areas include the more traditional architectural elements such as materials, massing, and roofs, but also establish criteria for siting buildings in different landscape types. These criteria range from protecting the crests of hills and valley floors to using natural vegetation to screen new development (Lang 1978).

CONCLUSIONS

There are several conclusions that can be drawn from the literature. First, there is increasing public support for controlling development to protect visual quality in selected landscapes. Federal legislation has increasingly called for the protection of visual quality on federal lands managed by different agencies, and on private lands or projects where the federal government has some standing. Local and regional governments have also enacted legislation to protect visual quality. Courts have supported this action, given some constraints.

Second, the practices and procedures established in local communities provide insights about both design elements that might be considered, as well as procedures to develop and implement design guidelines. While recognizing that local communities have legal constraints that are not applicable to NPS management actions, local design guidelines have been implemented, chal-

lenged in courts, and reviewed in the professional literature. This trial by fire should not be ignored.

Third, there are important areas of agreement across contemporary developments and historic districts about elements that are perceived to be salient for protecting or establishing visual quality in developed areas.

Fourth, the wide use in local communities of guidelines that include materials, colors, landscapes, and building heights suggests that these elements are important. The literature, however, emphasizes that design guidelines should be for specific contexts and that it is not possible to predetermine which design elements should be included. Several authors argue that a trained eye is necessary to determine important design elements in different contexts, and that definition of context is critical, or that training is necessary to move beyond architectural replication of existing development. This attitude must be balanced against public perception research, which suggests that the public sees replication of architectural elements such as facades as contributing to compatibility of new development with an existing context.

A fifth conclusion drawn from the literature is the emphasis placed on process as well as product. The successful design of a project that will be compatible with an existing context, and therefore protect visual quality, seems to be strongly related to communication and reflection between designer and client. The best designs, meaning those that are compatible but not necessarily replicative, arise from early and frequent communication and negotiation, rather than rigidly designing according to a set of rules.

Finally, it is important to note that rapid advances in computer-based visual simulation technology are providing valuable tools for facilitating more informed communications and reflection between designers and clients. Whether viewing alternative facade treatments in terms of materials, colors, or details, or juxtaposing photographic images or drawings of site and structure, for example, opportunities for both designer and client to review alternative design proposals with greater resemblance to real world conditions is greatly enhanced. Examples of these kinds of simulations are discussed in following sections of this report.

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PREDICTING ALTERNATIVE VISUAL FUTURES: AN ORIENTATION TO COMPUTER SIMULATIONS

Joseph Crystal

STEWARDSHIP OF VISUAL RESOURCES

Successful stewardship of visual resources is as important to the success of a park as the effective management of its natural and cultural resources. It is virtually impossible to affect one without influencing the other. To assist a park superintendent in managing the natural and cultural resources within a park there are often many people and management techniques available, as well as numerous in-depth studies and management plans. However, when dealing with visual resources and the built environment, the traditional tools available to the manager are somewhat limited.

Earlier papers have addressed the definition and components of visual quality, have established that there is general agreement among park and design professionals on the ability to recognize high visual quality in a built environment, and have summarized what the law says regarding mandating good design. None of this provides much practical guidance for the park manager in creating a visually appropriate park environment. It is usually left to designers to develop schemes for appropriate park facilities. Presumably these designers are able to visualize a design that fits into a park setting. Their task then is to communicate this information to a park manager and staff and to explain its concepts, functions, appropriateness, and other salient characteristics.

In order to study the design of a new facility and convey this to others, a designer has traditionally used two and three dimensional techniques with which many readers may be familiar, including:

- plans – including site plans, floor plans, roof plans, and others
- elevations – such as the north, south, east, and west views of a building's exterior walls
- sections – a cut through a building or site to illustrate the horizontal and vertical relationships in the facility
- miscellaneous – a number of other techniques, such as employing photographs of similar facilities and presenting samples of proposed materials for use in order to convey the design intent, colors, textures, and other characteristics
- perspective sketches – artists' renderings depicting the proposed facility from various vantage points
- scale models – these vary from being simple study models conveying general siting, scale, mass, and form to very complex models showing the design in fine detail

The ability of these techniques to effectively communicate to designers and nondesigners the intent and detail of planned developments varies greatly. Understanding the style and general appearance of a facility and assessing visual impacts to the environment and compatibility with a setting is not easy. It is not unusual to hear a park staff member proclaim, "I didn't think it was going to look like that!" in reference to a newly constructed park facility. Even the most successful depictions of a proposed development can be suspected of using artistic license to cover up weaknesses in a design.

Additional limitations to these conventional techniques may include:

- the time required to accomplish
- due to the time constraints, usually only a limited number of graphics are produced
- drawings are static – depicting one view, one angle, and one light condition
- graphics are subject to artistic interpretation
- stylized graphics are often difficult to understand – even for designers
- storage space required and deterioration of images without proper storage facilities

THE NEW TECHNOLOGY

Recent developments in data volume capability and speed in minicomputer and PC technology have created a revolution in how designers do business and how they convey designs to their clients. This computer-aided design and drafting technology offers a broad range of electronic applications to the design professions. Generally it creates the opportunity for all aspects of the design process from conceptual design through the production of construction drawings and specifications to be done without putting pencil to paper. Part of this capability includes the ability to create a variety of images with a speed and accuracy not available in the traditional two- and three-dimensional techniques.

There are primarily three types of computer-generated images used to visually simulate designs: wire diagrams, animations, and realistic imaging. Each of these simulations is based on detailed data that are entered into the computer prior to creating a visual simulation. A typical survey for a project site is conducted collecting topographic information, locations of natural features such as trees, rock outcrops, and shrubs, as well as existing buildings and utilities. This information is entered into the computer using techniques called digitizing and scanning, or often the survey data are collected electronically. In this case the discs containing the data are inserted directly in the computer, forming the existing conditions information. The proposed design information is also entered into the computer, usually by digitizing. If the design was done on a computer, the design data can be merged with the information from the survey.

The visual simulations developed from these data result from calculations employing exact horizontal and vertical information so that the images accurately mimic what is seen by the human eye. They are not guesswork or scaled from drawings as is often the case with traditional hand-generated techniques. Once the existing conditions data and the proposed design data are in the computer, the point from which the image is viewed can be changed easily so that at a proposed facility can be seen from many different angles in a matter of a few minutes. The lighting can also be manipulated to simulate changes experienced within a 24-hour period. A design can be modified in response to reactions to a variety of perspectives and conditions.

Wire Diagrams

Wire diagrams are line drawing representations of proposed designs. They are open-frame drawings that show the facility in a way that is similar to a constructed isometric drawing. However, in terms of representing a large landscape area, it is very effective in delineating the undulation of the ground plane. It also has the capability to show existing topography as compared to the proposed changes of the new design. As such it assists in the assessment of environmental impacts and compatibility or "fit" with a setting. As shown in figure 1, the wire lines connect two points in order to depict a change in elevation. Then the lines run together forming polygons to indicate topographic change over a large surface area. These diagrams may also form the basis for hand-rendered drawings providing a more accurate image of a setting.

The computer can also shade the wire diagrams, filling in the spaces between the lines. This shading can be done with many different colors and textures so that red bricks and wooden shingles may be depicted. It can also insert trees, ground covers, and people, which results in a realistic photographic-quality image.

Animations

Animated visual simulations may be created to be a walk through, drive through, fly over, or any other type of experience a designer may wish to produce (see figure 2). An animation is merely a compilation of images that are produced via the wire diagram and/or its enhancements. The quality of a sequence is based on the detail of the imagery contained in each frame as well as the number of images viewed per minute in much the same way that a motion picture cartoon is created. The more images that are viewed per second depicting subtle differences in the view, the smoother and more realistic the animation is. Animation is an excellent device for depicting a sequential visitor experience. It is, however, more time consuming and expensive to produce because of the number of individual images required for smooth animation.

Figure 1: Wire diagram depicting the Tennessee Highway 96 overpass of the Natchez Trace Parkway.

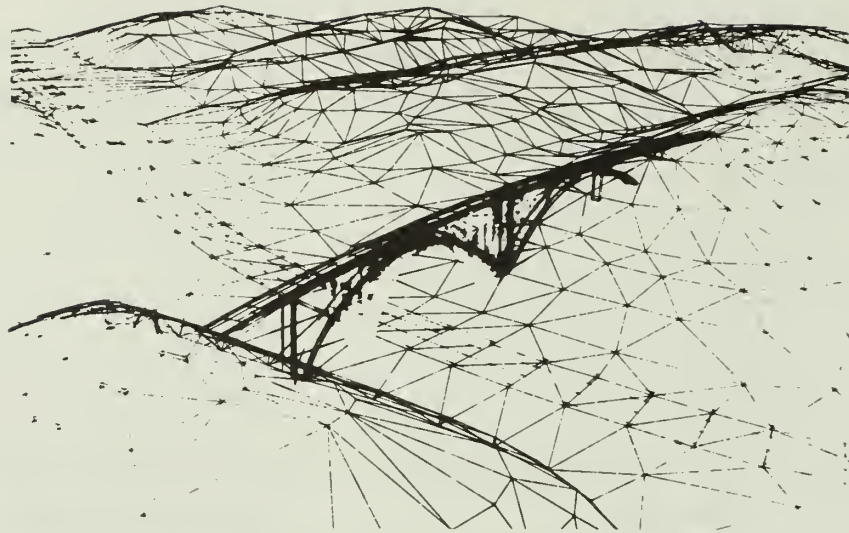
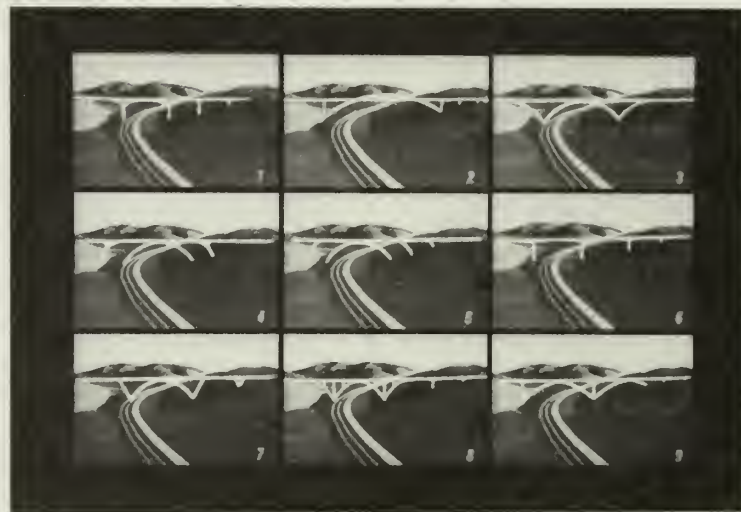


Figure 2: Design alternatives for the Highway 96 overpass.



Realistic Imaging

This type of visual simulation superimposes the design of a proposed facility on a photograph of a particular view. The process to achieve such an effect requires that a photograph of a particular viewshed be taken. The data is then entered in the computer via video scanning. The design data are then entered in the computer along with a site plan allowing the viewshed and a proposed viewpoint to be located planimetrically. The scale-adjusted designed image is then electronically painted on the photograph. The painted image can be detailed to be plain or realistic in its depiction of materials and textures as desired. The result is normally an image that looks as if it has already been built, fitting naturally into the landscape. As indicated in figure 3,

this technique facilitates the study of the visual impacts of various design solutions.

STRENGTHS AND WEAKNESSES

Computer visual simulations have many advantages over traditional hand-drawn representations. Once the appropriate background data is in the computer, many images from different viewpoints under differing lighting conditions can be created in a matter of minutes or seconds. This allows a designer and the client to evaluate a design and its impacts quickly and make changes or develop new design alternatives as needed. The compatibility with a setting can be assessed, and the need for additional vegetation as screening from adjacent land uses, the impacts

Figure 3: A realistic image from the same perspective as the animation. (All simulations by Design Workshop, Inc., Denver, Colorado)



Figure 4: A view from an animation, approaching the underpass on the Natchez Trace Parkway.



of earthwork, etc., can easily be delineated and understood. The massing of the building components and the appropriateness of its colors and textures can be clearly seen. This capability is having a revolutionary effect on the design industry. No longer do clients have to wait until a project is completed to understand all of a design's nuances. This results in better designs that are more effective in meeting clients' needs.

The images created through this medium are optically accurate due to the computer program's ability to adjust the data in response to the viewpoint selected, thus mimicking the three-dimensional character of the actual place being simulated, including factors such as foreshortening of views that take place in normal visual perception.

Visual simulations created by computers can be reproduced on paper, in slide form, or in video format. The digital data are directly transferred from the computer to these media. Hand-drawn simulations must usually be photographed before the images can be transferred to any other medium.

The simulation data for a project may easily be transferred from one computer to another via modem or transfer of computer discs. This feature allows a group of consultants to share the same base information in a convenient fashion. For example, an architect can develop a design for a structure and then send the data to the landscape architect without either person leaving his or her office.

CONCLUSIONS

The use of the computer to simulate the environment has given managers an extremely effective tool with which to evaluate the visual quality, environmental compatibility, and impacts of a proposed design. Typical applications of this technique would be used during the early phases of schematic design to assist designers and managers in developing effective design concepts and alternatives. Later in the process, simulation can be used to refine siting and grading of the landscape, as well as to evaluate the effectiveness of plant massing for screening from adjacent sites. The ability afforded by computer simulations to quickly look at a design from a variety of viewpoints and distances is of great assistance in this regard.

This technology provides the park manager with the ability to assess not only designs proposed for the park but also the ability to study development proposed adjacent to park lands. With such information, park managers can assist in the development of strategies for dealing with potential negative or devastating impacts. With the aid of simulations, it is possible to determine if external park uses are even visible from various vantage points within the park. Lastly, the importance of this tool for creating graphics appropriate for public meetings, publications, press releases, and similar communications requirements cannot be overstated. The ability to create images that appear lifelike gives meaning to the cliché that a picture is worth a thousand words.



PROTECTING THE VISUAL QUALITY OF NATIONAL PARKS FROM IMPACTS OF EXTERNAL DEVELOPMENT

Luther Propst & Mary Schmid

At the foot of the mountain, the park ended and suddenly all was squalor. I was struck by the strange compartmentalization that goes on in America: a belief that no commercial activities be allowed inside a national park, but permitting unrestrained development outside, even though the landscape may be just as outstanding. America has never quite grasped that you can live in a place without making it ugly. That beauty doesn't have to be confined behind fences, as if a national park were sort of a zoo for nature.

Bill Bryson *The Lost Continent* 1989

Managers in the National Park Service cannot perceive their responsibilities in isolation from their local community, state, and region. While units may have been selected because of their national significance, entry into the national park system does not imply removal from the regional context in which these units exist. Park managers must develop and implement a proactive partnership with neighboring communities.

We recommend that the National Park Service develop a technical assistance program aimed specifically at gateway communities and regions linked to national park system areas.

The National Park Service should encourage and assist local governments in long-term land use planning and sustainable economic development at ecosystem, landscape, and regional scales.

The National Park Service 1992
National Parks for the 21st Century
The Vail Agenda

GATEWAY COMMUNITIES

The national park system is something in which Americans take great pride. It celebrates the diversity of American life and history. Our national parks provide experiences that are increasingly difficult to come by in the urbanized world, and they generate an enormous wellspring of support and enthusiasm across the nation. This stature provides enormous opportunities to protect the parks and enhance their legacy.

Almost by definition, many national parks were created in remote areas, far from the pressures for intensive development. For over 100 years, this isolation and the seasonality of the tourist trade constrained growth in the small gateway communities located near most parks, helping protect visual quality and ecological integrity from the adverse effects of incompatible land uses on adjacent private lands.

GATEWAY COMMUNITIES AND GROWTH

Increasingly, however, many national parks have become magnets for residential, resort, and commercial development. Several factors are responsible for changing the traditional isolation of these areas:

Gateway communities adjacent to formerly isolated western parks are growing with the expansion of the year-round tourist trade and the maturation of resort communities.

Changes in business technology and a more dispersed national economy allow more people to move out of urban areas and into communities surrounding wildlands.

As the nation's population ages, more Americans are retiring to communities in pristine settings.

Metropolitan sprawl is encroaching on formerly isolated protected areas.

Many new recreation areas, national seashores, and wildlife refuges have been created on the edge of metropolitan areas.

Many examples demonstrate the recent growth near national parks and other protected areas:

Census data show that between 1980 and 1990, the 20 counties surrounding Yellowstone National Park and the adjoining wildlands grew at a faster rate than any state in the nation; this growth was motivated almost entirely by the attraction of living adjacent to wildlands.

Approximately 90% of the 352-mile boundary of Shenandoah National Park is bordered by private land. In 1982 approximately 10% of the boundary was developed with suburban development; by 1992 this figure had risen to approximately 40%.

The town of Springdale, Utah, recently approved an eight-story IMAX movie theater and commercial complex directly adjacent to the only public campground in Zion National Park.

As a result of rapid growth in neighboring communities, inappropriate and poorly-sited development threatens the gateways, viewsheds, historic settings, and ecosystems of many national parks. A 1988 National Park Service report, *Natural Resources Assessment and Action Program*, identified approximately 1,750 existing and prospective threats to national park system natural areas alone. Two-thirds of these threats were tied to activities outside park boundaries.

INCOMPATIBLE DEVELOPMENT ON ADJACENT LAND THREATENS THE VISUAL QUALITY OF NATIONAL PARKS

In addition to damaging the ecosystem, unplanned development on private property outside park boundaries is doing great harm to the visual integrity of these areas – marring scenic vistas with intrusive buildings and roads, polluting streams before they flow through parks, clouding the air over distinctive natural settings (including the Grand Canyon), and intruding on the visitor experience with the noise and lights of traffic and urban activities. And as more Americans choose

to live on the perimeter of wilderness areas, threats to our national parks from ill-sited development and poorly planned growth will continue to intensify, adversely affecting not only park resources and the visitor experience, but also the very quality of life that can attract high-quality jobs and sustainable economic activity to communities adjoining national parks.

The Consequences of not Addressing Adjacent Development Issues

The following two examples demonstrate the high cost of failing to deal adequately with adjacent development before a crisis develops.

Manassas National Battlefield Park. In 1988 a developer proposed to build a small office park and neighborhood shopping center on a 542-acre site adjacent to the Manassas National Battlefield Park in suburban northern Virginia. This proposal brought objections from the Park Service, as Civil War historians had agreed that the site is historically important in its own right, and current traffic flow through the park was already significantly degrading the visitor experience.

The Park Service eventually supported this relatively modest proposal based on the assurance that development would be designed to reduce impacts on the battlefield. However, the developer later announced a new plan for a dramatically expanded development on the same parcel, which included a 1.2 million-square-foot regional shopping mall, 1.7 million square feet of office space, and 560 residential units. Prince William County officials vigorously supported the expanded proposal due to the perceived prestige and increased tax base the proposal would bring. County officials decided that the new plan required no new zoning permits or approvals and no public hearings.

The ensuing battle resulted in federal condemnation of the entire parcel, converting the property to federal ownership at the highly inflated cost of approximately \$118 million. The decision to use the legislative taking tool to rescue this historic site was reached because the visual and traffic impacts of a regional shopping mall and associated development would have seriously compromised the scenic and historical value of the entire battlefield.

Although acquisition of nationally significant parkland is always justifiable, the tremendous expense of buying this parcel (completely outside the Park Service's acquisition priorities) could have been avoided by early agreement on land use policies that met both local and national objectives. A good-faith, collaborative growth management process, perhaps with federal acquisition of a portion of the parcel, might have protected the integrity of the battlefield, saved taxpayers millions of dollars, and provided economic benefits for the county.

Rocky Mountain National Park. A similar situation arose at Rocky Mountain National Park in Colorado when growth around the town of Estes Park on the park's eastern boundary threatened to degrade park views, expand uncontrolled use of the park by neighboring landowners, block public access, and cut off wildlife routes and winter habitat. In an urgent response in 1989 Congress expanded the park by 400 acres to prevent development of a large multifamily residential project. Foresight and planning could have protected this boundary much earlier and saved taxpayers considerable expense.

EXTERNAL THREATS ARE A SYSTEMWIDE PROBLEM

The Manassas controversy is symptomatic of the growing threat to many units in the national park system from incompatible activities outside park boundaries. While many of the threats to other areas may be less dramatic than the proposed William Center Mall at Manassas, they are equally insidious in undermining the integrity of park resources.

The Conservation Foundation's 1985 study, *National Parks for a New Generation*, documented the growing external threats to many units throughout the park system. A 1989 report by the National Parks and Conservation Association, *Investing in Park Futures*, reinforced this finding. The National Park Service's 1992 report and recommendations to the director, *National Parks for the 21st Century - The Vail Agenda*, also recognizes increased development adjacent to national parks as a systemwide challenge:



Figure 1: Simulation of the existing landscape, where site photographs were matched electronically to a three-dimensional terrain model. (Simulations by Design Workshop, Inc., Denver, Colorado)

Figure 2: Simulation of the commercial development matched to the digitized terrain model and site photographs. (Simulations by Design Workshop, Inc., Denver, Colorado)

Increased population and expanded resource and energy demands are impacting park resources such as air and water quality, wildlife, and scenic vistas. Shared ecosystems as well as cultural landscapes are being adversely impacted. For the Park Service, the problem is now recognized as one with systemwide dimensions, and it has focused concern on how parks can most effectively deal with park neighbors and their activities.

Innovative measures to protect the visual quality of national parks from the intrusion of surrounding development must be vigorously pursued. External pressures require attention at the source: the privately-owned lands in communities adjacent to parks. However, the National Park Service's mandate to preserve park resources unimpaired, difficult to apply inside the parks, is far more complex when threats originate outside park boundaries. Neither the Park Service nor many gateway communities have been eager to address the conflicts that arise when incompatible development is proposed on private property adjacent to parks. The Park Service itself recognizes that "external threats, though generally the most serious, are receiving little attention . . . because they are considered more complex and much more difficult to deal with." (Gregory 1985)

Park managers face several challenges when addressing external threats. They have few obvious tools beyond persuasion to affect the outcome of local development decisions. If a superintendent questions a large commercial or residential development adjoining park boundaries, he or she risks being perceived as a meddlesome neighbor. Many residents view protected land as an unwanted drain on the local tax base and may express resentment over what they see as federal intrusion in local land use affairs. For these reasons, some Park Service officials do not participate in local land use matters.

As a practical matter, opportunities to defend against threats arising outside park boundaries vary, depending on the source of the threat. In particular, activities dependent on federal funding or requiring federal permits can be addressed in ways not readily applied to other activities.

Although federal law authorizes the Park Service to influence the use of private property to protect

park resources in a few places (for example, Redwood National Park and Cape Cod National Seashore), the Park Service generally has little explicit authority over adjoining private property. Regulatory control over local land use is – and should remain – principally a local function. However, the management of an increasing number of parks requires close cooperation with neighboring landowners and local governments to ensure that local land use decisions properly consider park values and resources.

The ability of the National Park Service to protect the visual quality of park resources and to provide a quality experience for the visitor increasingly depends on its ability to influence decisions and mobilize action by state, local, and private decision makers. Cooperative models are needed involving the Park Service, local and state governments, and private landowners.

PROTECTING THE VISUAL QUALITY OF NATIONAL PARKS FROM IMPACTS OF DEVELOPMENT IN GROWING GATEWAY COMMUNITIES

Reconciling development pressure with protection of visual, cultural, and natural resources is essential for ensuring both the integrity of many national parks and the long-term economic vitality of neighboring communities. Federal land acquisition has long played a critical role in reconciling these conflicts. However, not all scenic land can, or should, be acquired as a public resource. There will always be private land that must be managed carefully if nearby natural areas, cultural landscapes, and scenic vistas are to retain their integrity.

The most promising opportunity to meet this challenge lies in developing and implementing diverse cooperative mechanisms that avoid and resolve threats from adjacent development. The success of these solutions requires full use of the Park Service's design and development skills as well as sensitivity to the objectives of adjacent local governments and landowners.

Successful efforts to manage growth have several elements. With awareness of these elements, park managers will better work with gateway communities to ensure that future development does not degrade park visual quality.

Assist in Building Shared Visions of the Future and Tailor-Made, Tangible Measures for Implementation

Among the most effective measures for improving the manner in which adjacent communities deal with growth is to develop a positive, shared vision for the future of the community and its neighboring national park. A local vision addressing a range of community needs and implemented with tangible projects – such as design controls and land use management techniques as components of a comprehensive growth management program – is much more likely to succeed than simply trying to bring about local adoption of ordinances to protect park values. Successful initiatives are tailor-made for the unique local circumstances surrounding each park, rather than following a uniform, nationwide methodology. By focusing on a vision with popular appeal that is built upon distinctive local assets, a lasting constituency for protecting these local assets can be built.

Front Royal, Virginia – This historic town, adjoining Shenandoah National Park, launched an effective downtown revitalization program with measurable results – reduced vacancy rates, increased rent, and a more attractive setting – that created local momentum for implementing conservation and visual enhancement measures in the town's subdivision regulations and a gateway enhancement project.

Successful Communities Program in Greater Yellowstone – The Sonoran Institute is a nonprofit organization based in Tucson, Arizona, that works nationwide to preserve the integrity of protected natural areas by cooperatively resolving potential conflicts between conservation interests and the needs of neighboring communities, and by ensuring that adjacent development adheres to the highest level of environmental compatibility and sensitivity. The institute has worked with local sponsors to convene successful workshops in six communities within the greater Yellowstone ecosystem. These workshops use informed communication to forge partnerships between park managers, conservationists, developers, and local officials, and to develop solutions tailor-made for unique local circumstances that protect park resources while meeting the economic and social objectives of landowners and communities. The workshops have helped communities change in ways that are sensitive to local values, while ad-

ressing the need to preserve and protect the greater Yellowstone ecosystem.

The first successful communities workshop took place in the town of Jackson, Wyoming, in March 1990. The workshop resulted in strong public support for the town and Teton County to cooperate in developing a joint land use plan. Successful Communities Roundtable, a broad-based, nongovernmental group, was created to convene regular meetings on planning issues and to monitor the planning process.

Recognizing that extractive industries (such as lumber and mining) are in decline, Teton County has rejected a future overly dependent upon any single sector and is working to build a balanced economy that includes asset-based tourism, retirement, agriculture, footloose businesses, and professional activity – which will minimize negative impacts on the county's scenic attractiveness and unique western character. As a result, while there is a statewide recession, Teton County is booming.

Local ordinances that severely restrict development in ecologically significant and scenic areas, protect valued community character, and promote diverse and affordable housing are under consideration.

Another consequence of the Jackson workshop was that it opened the door for workshops in other greater Yellowstone communities, including Driggs and Victor, Idaho (Teton County); Red Lodge, Montana (Carbon County); Livingston, Montana (Park County); Dubois, Wyoming (Fremont County); and Gardiner and Cooke City, Montana (Park County).

In Red Lodge, the community's small town atmosphere and unique historical architecture and culture were identified as valuable community assets. Other goals included preventing unsightly strip development and protecting the area's natural beauty, environmental quality (including clean air and water), rural setting, open space character, and abundant recreational opportunities. Participants expressed the general concern that unregulated and poorly planned growth would jeopardize these assets.

By the workshop's close, four committees had been established (steering, land use planning, preservation, and economic/financial) to address

the goals identified in the workshop and to foster ongoing public participation. The land use planning committee has initiated an effort to create a comprehensive land use plan for Red Lodge and the surrounding area with the goal of building a stable, diverse economy that will reduce dependence on tourism and provide good jobs while not detracting from the area's scenic beauty and quality of life.

In Livingston participants created a work plan similar to that generated in Red Lodge. Their priorities are to protect and revitalize downtown Livingston, prevent sprawling development along US 89 between the interstate highway and Yellowstone, promote clean and quiet economic activity, avoid tourism-driven overdevelopment, create a local land trust to form a greenway along the Yellowstone River, and develop a comprehensive land use plan for the area. The group created committees to pursue these items.

Park Service staff can encourage similar local efforts in communities adjacent to their own parks. In addition to developing a clear vision based upon shared values, many communities have successfully used various activities and policy options to prevent the incremental ecological and visual degradation of the natural and built environment. Some of these techniques, which park managers can explain and encourage (and then take part in) in gateway communities, are:

Compile a single, well-illustrated, and easily accessible source of information about a community's significant natural and cultural assets with a realistic assessment of these assets and distribute it widely throughout the community prior to a public planning process. This not only encourages public involvement and informs local decision makers, but can also help build pride in the community's distinctive assets.

Analyze the costs of alternative development patterns and scenarios. If local decisions incorporate sound information about not only the visual and ecological impacts of development but also the economic impacts of various land use options, gateway communities will see that preserving natural open space – and consequently scenic values – is often a better option than fiscally draining development.

For example, in Alabama, the Huntsville Land Trust compared the public cost of development to the cost of open space acquisition in its effort to preserve Monte Sano, the city's scenic mountainous backdrop. An independent study concluded that the public infrastructure and service costs of the proposed development would be significantly higher than the city's acquisition and annual maintenance costs if the land were to be purchased for public open space. Voters have since approved a bond referendum to acquire and protect part of the mountain (Smith, Propst and Abberger 1991).

This kind of analysis could be used to support similar preservation of natural open space adjacent to national parks.

It is a fallacy that reducing development density will necessarily create more benign development. Sensitive land planning and design, clustered development with protected open space, and increased densities in exchange for public amenities such as bicycle paths, can produce development that is aesthetically, environmentally, socially, and fiscally superior to lower density development.

An increasing number of communities are rethinking density and design controls in order to create contemporary counterparts to the traditional small towns. These new (or neotraditional) designs encourage a mix of housing types within walking distance of places of employment, commerce, and recreation. Their compact design can protect critical scenic and natural resources. They often differ from most recent development by stressing the historic architectural styles and building materials of the region in which they are located, resulting in a visually pleasing built environment that does not intrude on the surrounding landscape.

HELP ESTABLISH INTERGOVERNMENTAL AND COMMUNITY COOPERATION IN GATEWAY COMMUNITIES

Many gateway communities recognize the national interest in protecting and enhancing national parks. Neighboring landowners,

developers, and local planning and zoning officials have worked closely with park managers to produce effective collaborative solutions and to avoid or reduce the adverse impacts of proposed development.

Cape Cod National Seashore

The best known cooperative mechanism yet developed involving the Park Service and neighboring communities was implemented in Cape Cod, Massachusetts. A principal objective was to preserve the area's distinctive built environment.

In the 1960s and 1970s the federal government acquired approximately 5,700 acres of upland to create the Cape Cod National Seashore. Cape Cod marked a turning point for the national park system. Cape Cod was the first sizable park unit in which proximity to large numbers of people – in this case, well over 20 million persons within a day's drive – became an important, explicit rationale. Unlike most earlier parks, it was not carved out of lands already in the public domain. In fact, influencing the pace and quality of private development on the lower Cape was an important objective of those who sought federal protection.

In creating the seashore, Congress incorporated two major innovations that have ongoing management implications. First, existing towns were enclosed within the park's boundaries, or surrounding "green line." The location of a sizable park in the thick of settled communities entailed a closer and more complex ongoing park-and-town relationship than was the case with most other national parks. Second, under the Cape Cod formula, about 600 homes within the park's boundaries remain indefinitely in private ownership. The federal government waived its power to condemn these homes if local governments passed zoning regulations compatible with the protection of park resources. This arrangement was more than a compromise with owners; from the start, proponents were seeking to preserve Cape Cod's picturesque homes and villages as a living landscape.

As a result of these innovations, ownership of the 43,500 acres in the Cape Cod seashore is mixed – the federal government owns more than half; the commonwealth of Massachusetts, some 12,000 acres of tidal land; the towns, more than 2,500 acres; and private citizens, over 1,800 acres.

Local residents originally opposed the national seashore proposal. However, in the 1980s, when growth pressure increased and federal acquisition essentially stopped, five of the six towns within the seashore approved substantial local funding to acquire and protect open space. Fifteen of the sixteen communities on the cape approved \$117 million in local funds to protect over 5,000 acres. Seventy-six percent of voters on the cape approved creating the Cape Cod Commission, a regional land use authority that reviews developments of regional impact and development within sensitive areas.

Saguaro National Monument

In Tucson, Arizona, an innovative cooperative mechanism was developed to protect Saguaro National Monument. The monument was established in 1933 to preserve "the exceptional growth thereon of various species of cacti including the majestic saguaro cactus." Over the years, Tucson has grown to the very boundaries of the monument, making Saguaro a suburban wild area. By the mid 1980s, continued piecemeal subdivision and unplanned development of adjacent land raised concerns about the monument's ecological and scenic integrity, and the future quality of the visitor experience.

A proposed mixed-use, resort-oriented community on the 6,000-acre Rocking K Ranch, which shares a five-mile boundary with the monument's Rincon Mountain unit, embodied the diverse land use challenges facing the monument. Realizing that whether this particular proposal was approved or not, urban growth would transform the area over the next 20 years, the Park Service, county officials, World Wildlife Fund, and local environmentalists saw the opportunity to positively influence the future character of a significant area of land adjacent to the monument. They worked with the developers to produce a site plan that clusters development and restores degraded riparian habitat throughout the ranch. The plan will minimize impacts on the monument's visual and natural resources, preserve critical wildlife habitat, and retain the rural desert character of the landscape.

Rocking K Development Company also joined national and local environmental organizations in expanding Saguaro National Monument by 3,540 acres, including approximately 1,900 acres of the

most ecologically significant lands within the Rocking K Ranch.

In addition to these measures, a new kind of mechanism was developed to meet the need for long-term stewardship of park resources. The Rincon Institute, an independent, nonprofit organization, was created to provide environmental education, restore and manage wildlife habitat, perform environmental monitoring and compliance, conduct scientific and policy research, and provide technical assistance in land use matters in the area. The Rincon Institute will educate builders and homeowners about minimizing the direct impacts of construction, as well as about which building and landscaping materials and designs are most appropriate in a desert environment, and which visually intrude least on the landscape. The institute and the Rocking K Development Company entered into an innovative agreement to support these activities through start-up funding and deed restrictions that guarantee long-term private funding.

Help Gateway Communities Develop Cooperative Local Action that Recognizes and Capitalizes on National Park Resources

The integrity of many national parks increasingly depends upon decisions made by local officials and landowners. At the same time, the economic vitality of many communities depends on maintaining an attractive natural and built environment and capitalizing on the tremendous economic impact of nearby national parks. Unplanned growth and poor coordination between gateway communities and national parks negatively affect both the communities and the parks. Poorly designed and sited adjacent development threatens the visual and natural resources of parks; it also threatens the very quality of life that attracts residents and visitors to gateway communities in the first place (Steffens 1993).

A community's quality of life affects not only local well-being but also local capability to attract new residents and economic activity. Most of the recent urban-to-rural migration consists of city dwellers moving to rural areas for a better quality of life, rather than for economic reasons (Swanson 1984). Quality of life has also become an important factor in retaining existing businesses and

attracting new ones (McNulty et al. 1985, Buchta 1987).

Of particular relevance to gateway communities is the fact that preserving scenic beauty may be essential for a successful tourism economy. For example, a poll commissioned by the President's Commission on Americans Outdoors showed scenic beauty to be the single most important criterion for tourists in selecting a site for outdoor recreation (Scenic America 1987). In fact, a study found that visitors to the lower Wisconsin River would be willing to pay about \$18 more per visit not to see unsightly development along the river (Boyle and Bishop in Brabec 1990). Park Service staff can use such facts to demonstrate to neighboring communities the economic benefits of preserving both the visual quality of the built environment and the beauty of surrounding natural scenery.

The challenge facing both the National Park Service and residents of nearby communities is to mobilize cooperative action that protects park values and capitalizes on natural values to meet community objectives. The cornerstone of successful cooperative planning and park protection efforts is that they are guided by both national and local priorities, with benefits to park resources and to adjacent communities receiving due consideration. Cooperative mechanisms must involve strong local constituencies that recognize the economic and other contributions national parks make to the local quality of life.

Successful examples of this approach may provide park managers with a starting point for developing their own tailor-made mechanisms for protecting the visual quality (and other resources) of their parks.

One such example is Pittman Center, Tennessee. Citizens of this community adjacent to both Great Smoky Mountains National Park and the Gatlinburg-Pigeon Forge Tourism Complex, with the assistance of the Southern Appalachian Man and the Biosphere Program, recently undertook a comprehensive planning effort. This led the town to realize that residents prefer an emphasis on attracting high quality development that does not detract from the scenic natural setting of the region and protects the community's bucolic character. Pittman Center is now providing a distinctive alternative to Gatlinburg's amusement park

atmosphere and seasonal, minimum wage economy.

Link Park Needs With Gateway Community Needs

Threats to the visual integrity of national parks posed by adjacent private development can be successfully addressed when activities balancing protection of local values, conservation of nature, and economic development are integrated into a single community agenda. The key is for park managers to help these communities to see the link between protection of park resources and other local needs.

Through techniques such as successful communities workshops, residents and decision makers in gateway communities can perceive the protection of natural resources in tangible terms such as preserving scenic beauty, rural character, and recreational opportunities. Elements common to all of these assets (scenic vistas unspoiled by harsh clearcuts or mining activities, for example) can create an unusual coalition among sometimes opposing camps. It is these linkages that can enhance a community's ability and commitment to make real progress toward protecting the visual quality of both the built and the natural environments.

RECOMMENDATIONS AND OPPORTUNITIES FOR THE NATIONAL PARK SERVICE

Isolation and the seasonality of the tourist trade can no longer protect the visual and ecological integrity of our national parks from incompatible development of adjacent lands. The most promising opportunity to protect parks against external threats lies in diverse cooperative mechanisms involving the Park Service and park neighbors. These partnerships are needed to provide a forum where activities can be discussed, differences thrashed out, and a consensus developed that recognizes the needs of both parks and their neighbors.

The National Park Service is becoming increasingly involved in state and local decisions about private land development. Park Service management policy now explicitly realizes the NPS role in regional planning. The current publication on

official park management policies (NPS 1988) includes a section on "Park Planning in a Regional Context," which reads:

The National Park Service will work cooperatively with others to anticipate, avoid, and resolve potential conflicts, to protect park resources, and to address mutual interests in the quality of life for community residents, considering economic development as well as resource and environmental protection.

Superintendents will work with neighboring landowners on topics of mutual interest and will explore ways of providing technical assistance to neighboring landowners.

Superintendents will seek to encourage compatible adjacent land uses and to mitigate potential adverse effects on park values by actively participating in planning and regulatory processes of neighboring jurisdictions . . .

While the Park Service should actively encourage its staff to cooperate with gateway communities, legislation with the following provisions would authorize and encourage the cooperative approaches necessary to ensure that external threats to the visual quality and other resources of the national park system are addressed.

Training for Park Service Managers

An intensive training program for appropriate personnel (e.g., superintendents, management assistants, and resource management specialists) in cooperative and proactive strategies for dealing with external threats to the integrity of park resources should be established. In addition, written and audiovisual materials explaining the need for improved cooperation with adjacent communities (and presenting information about cooperative mechanisms to implement protection strategies) should be prepared and distributed to park managers.

Cooperative Pilot Programs

Cooperative pilot programs should be created in a limited number of gateway communities and national park units to serve as model projects.

These pilots should constitute a variety of resources and circumstances. Criteria for selection may include the presence of:

significant resources within the community's jurisdiction that have a strong relationship to the adjacent national park and that warrant protection or particular sensitivity if they are to be developed

a threat to park and community resources from unmanaged growth

a demonstrated willingness among the park management, local decision makers, and citizens to protect and enhance these resources as the community accommodates growth

the need for outside assistance to properly protect these key local resources due to lack of local experience, financial capability, or consensus

approaches used, programs implemented, and lessons learned that have applicability and significance beyond that particular park and community.

After completion of the pilot phase, the Park Service may prepare a report analyzing the effectiveness of the pilot programs, what has been accomplished, what lessons have been learned, and how and under what circumstances these lessons can best be made available throughout the national park system.

Part of these programs may involve providing technical support or grants for land use planning in selected gateway communities. In addition, the Park Service should be authorized to accept donations of lands and easements in certain adjacent lands.

A unique opportunity to establish such pilot programs currently exists. Across the country there is an unprecedented wave of state and local action to protect significant resources – such as open spaces, natural areas, and historic resources.

More than ever before, local governments, business leaders, and local citizen groups are potential allies in efforts to protect parks. Many states have recently enacted far-reaching statewide growth management legislation.

This heightened level of local activity offers the Park Service an unprecedented opportunity to complement federal land acquisition and management with innovative methods for protecting lands and communities as part of integrated regional strategies for conservation and sustainable development – not just at Cape Cod and other partnership parks, but in and around many traditional parks. For example, in states such as Oregon, Maine, Florida, and New Jersey, cooperative programs could be embodied in the state's strong statewide planning and land use control programs.

Innovation Grants

Small catalytic grants to local nonprofit organizations or local governments should be funded to undertake collaborative efforts to protect park resources. Many communities around national parks are facing unprecedented growth pressures. In order to deal effectively with growth, they need to inventory local natural and cultural resources that contribute to the community's economy, quality of life and distinctive character, or that may contribute to park values, identify economic opportunities generated by park visitors, position the community to gain maximum benefit from its relationship to the national park in a manner consistent with protecting park values, and build consensus for and implement practical strategies for fulfilling the community's needs and priorities while protecting and enhancing park values.

In a few instances, notably at Pictured Rocks and Sleeping Bear Dunes national lakeshores, New River Gorge National River, and Cumberland National Seashore, Congress has authorized the Park Service to provide grants to local regulatory and planning agencies. To the extent that these funds reduce the need for federal acquisition of parcels to prevent incompatible adjacent development, this is an excellent investment. These small grants should be more widely available.

Intergovernmental Personnel Loans

Under the Intergovernmental Personnel Act, agreements with appropriate local governments and nonprofit organizations engaged in land use planning initiatives should be authorized and

encouraged. Agreements that place Park Service personnel in outside agencies and bring outside experts into the parks will produce more effective resource protection strategies and build bridges between parks and local governments.

RECOMMENDATIONS FOR PARK MANAGERS

Understand Growth Management Techniques and Legal Limitations

A wide variety of state and local planning and regulatory strategies are available to protect park resources. Local growth management involves a host of public and private tools and techniques – land use planning and regulations, land acquisition, conservation easements, and state condominium and common interest ownership laws (which allow developers to impose duties by deed restrictions such as monthly homeowner fees for conservation purposes). Basic familiarity with these tools is essential if park managers wish to participate effectively in local land use planning.

Among the techniques that can improve the visual quality of the built environment are regulations controlling the design and appearance of new development (often requiring specific building materials, landscaping, site design, and other features), and prohibition or restriction of development of sensitive natural and historic areas.

Local land use decisions unavoidably raise legal questions. Landowners who lose property value because of a land use decision are often upset and, at times, moved to action. Park managers and gateway communities need to carefully consider the legal implications of proposed growth management regulations and permitting decisions. This is increasingly important as development pressures build and as a community begins to use its regulatory authority to actively manage growth, rather than simply to segregate potentially incompatible uses through traditional zoning laws.

The most controversial legal issue raised by land use regulation is the point at which regulation of private land becomes an unconstitutional taking of private property without just compensation. The Fifth Amendment to the U.S. Constitution prohibits the federal government from taking private property without just compensation, and the

Fourteenth Amendment extends this prohibition to state and local actions; state constitutions also prohibit the taking of private property without just compensation. These provisions have occasionally been interpreted to prohibit land use regulations that leave the property with no economically reasonable use.

Avoid Legal Difficulties

Although judicial decisions allow local governments to implement effective programs controlling the effects of unplanned growth, legal challenges to programs or decisions that reduce property values should be anticipated. Frequently, however, concern about such challenges imposes a greater limitation on effective action than necessary. Park managers should become well versed in applicable state and federal land use decisions. For example, many recent decisions hold that there is no constitutional protection against zoning decisions that substantially reduce property values and there is no constitutional right to transform wetlands or to place structures within floodways.

Park personnel can substantially help local land use decisions withstand legal challenges by providing thorough documentation and evaluation of park resources and the adverse effects posed by incompatible development. This documentation is a critical element of effective local involvement.

The following are general suggestions park managers should keep in mind when advising gateway communities on how to avoid successful legal challenges to land use programs and decisions:

The best defense is a good offense – the comprehensive plan. A comprehensive planning process – which includes thorough documentation and analysis of local development trends, the local costs and impacts of development, and the adverse effects that a growth management program will address – will help immensely in preventing and withstanding legal challenges.

Carefully document the connection between the ends (planning objectives) and the means (specific regulations). This will minimize exposure to taking, substantive due

process, and equal protection challenges. The impacts of a regulation on a specific landowner may be much more tangible and direct (and therefore more compelling to a judge) than the communitywide benefits of the regulation. For this reason, the public benefits of a regulation should be clearly and convincingly explained.

Carefully draft regulations to ensure that they do not result in a regulatory taking by prohibiting all economically reasonable use of a parcel. An open space or setback requirement is likely to be upheld so long as some economically reasonable use is permitted on the parcel as a whole.

Preserve an economically feasible land use to the extent possible to help avoid taking challenges. Where a regulation would prohibit all such uses on certain property, explore the option of transferring densities to another site.

Leave open the opportunity on the public record for a landowner to resubmit an improved development proposal. If a development application is denied, make sure that the public record clearly shows that the board or agency would consider a modified or more appropriate development proposal. Make sure that the reasons for denial are supported by the development regulations and the comprehensive plan.

Never use regulatory powers to facilitate public acquisition or to reduce the price of land to be acquired. Carefully avoid creating any inference that public acquisition is a factor, even a minor factor, in a regulatory decision.

Actively Participate in the Local Land Use Decision-Making Process

While a basic familiarity with the technical and legal aspects of growth management strategies is essential to successfully protecting a park's visual quality, detailed technical knowledge is less important than an understanding of and active participation in the local processes in which land use decisions are made. By mobilizing the full array of talent, experience, and expertise of its landscape architects, civil engineers, architects, and

designers to influence land use adjacent to parks, the Park Service can contribute substantially to protecting the long-term visual and ecological integrity of park resources.

Several factors – early participation, devotion of substantial time and energy, an understanding of how the real estate market and development process functions, political acumen, good humor, and persistence – are among the necessary ingredients for effective participation by park managers in local land use decisions. Beyond this, the following general principles should be kept in mind.

Know Your Neighbor

Effective participation requires developing constructive working relationships with key local decision makers, landowners, and citizen activists. These relationships should be developed outside of council chambers and public hearings to encourage a real understanding of the various perspectives.

Get Involved Early and Often

The best opportunity to influence land use decisions is generally well before development proposals are made public and pre-development activities (such as acquisition of a ranch or farm by developers, or local budgeting for utility extensions) have created expectations and momentum for an area's development. For this reason, the most effective strategy is to work with the community long before specific development proposals surface to develop a positive, popular vision for its future, and then to devise methods to implement this vision.

Recognize that the Process is Political

Effective local conservation is much more a function of public concern and political will than reliance upon any particular growth management tool or technique. In the final analysis, state and local land use decisions are made by elected officials, with political considerations foremost in their minds. Effective participation in these decisions requires an explicit acknowledgement of the political nature of the process. The following general rules will help improve effectiveness:

Be a credible resource for public officials. There is no substitute for thorough preparation, so do your homework and their homework. Keep local officials informed about resource protection issues and always fulfill your commitments.

Build effective coalitions. Encourage articulate and energetic people who care about the community to get involved. These allies generally need to be much broader-based than "friends" groups. Creatively identify common ground with others who are not natural allies, perhaps downtown merchant associations. On the other hand, it may be necessary to break ranks with traditional allies on some issues. You can do so without losing respect if you are guided by firm principles rather than political expediency.

Clearly articulate why public officials should protect the park and focus on the positive contributions that the park makes to the overall quality of local life. Appeals to non-economic values play best to the already converted, not to swing votes. The assertion by business leaders that a proposal is bad for business can wreck the best-laid conservation plans. However, park protection appeals based on quantifiable economic factors are increasingly credible, as local quality of life becomes a more important factor in business siting decisions. Although it can require substantial effort, documenting the extent to which a national park

contributes to the local economy (through property values, sales tax revenues, and jobs) can be a powerful tool.

CONCLUSIONS

The visual quality of many national parks increasingly rests in the hands of state and local land use decision makers. The key to effective participation by park managers in state and local decisions affecting the built environment around national parks is to help build local concern for protecting park resources and to help translate this concern into effective political action.

The Park Service must build enduring partnerships – two-way streets – with neighboring landowners and communities. These partnerships must emphasize the benefits of protecting the visual and ecological integrity of national parks, as well as preserving the quality of life and enhancing the economic well-being of adjacent communities. Opportunities must be created to apply the Park Service's design and development skills outside traditional roles to help meet the needs of gateway communities. In turn, by responding to these needs, strategies to protect adjacent parks from the impacts of external development reach the agenda of local decision makers. Such partnerships are not a luxury. They are essential to leaving the visual quality of the national park system unimpaired for the enjoyment of future generations.

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PARK DEVELOPMENT: THE SEARCH FOR VISUAL QUALITY AND ECOLOGICAL SYMBIOSIS, EBEY'S LANDING AND FORT CLATSOP

Geoff Swan

VISUAL COMPATIBILITY

In the management of national parks, many activities have the potential to complement or adversely affect the visual quality of the park landscape. In too many instances, building and landscape details have not been coordinated, resulting in visually incompatible design solutions. During the spring of 1987 the Pacific Northwest Regional Office initiated a thrust to enhance the visual quality of the parks in this region. This thrust was intended as a direct response to former Director William Penn Mott, Jr.'s 12-Point Plan to protect and enhance the heritage of the National Park Service.

The goal is to establish a visual theme or character for each park, identify desired standards, and then implement and maintain those standards. An initial assessment of the visual quality of existing park development provides baseline information, from which a palette of design details and a maintenance guideline for needed changes and future development can be developed. Two visual compatibility guidelines (VCG) have been completed that meet the first part of this goal. A second step has been to develop a visual quality component for the region's operations evaluations program as another way of building baseline visual quality data and to identify where improvements should be made. This has been accomplished successfully in five operations evaluations to date. Our other current effort consists of developing objective standards for visual quality of park landscape components that can be integrated into the Maintenance Management System (MMS). Hopefully, the information developed may be useful service-wide in enhancing the visual quality of our parks.

Park development is a resource. Since the dominant sensory mode of human perception is visual, the visual "pattern of the place" is a significant element in enhancing or frustrating

visitor experience. Design and condition of park facilities is indicative of how successfully parks are managed and how the National Park Service defines quality. At its best, successful integration of park development with landscape form, using native materials, textures, and colors, and respecting culturally significant resources, provides a special human setting symbiotic with the values of the park. At its worst, this relationship detracts from the entire national park experience, and reduces repeat visits to the national parks. Park facilities must be of simple design, highest quality, durable, energy efficient, and easy and cost-effective to maintain.

An important consideration must be the cumulative impact of developments upon park resources, both ecologically and visually. Though the national park system must provide a full spectrum of facilities and opportunities for all visitors, each individual park or for each developed area within large parks cannot serve all visitors. This will open up new options to remove developments from sensitive resource areas, to scale back or eliminate existing facilities, to develop alternate types of low visual and ecological impact facilities, and to support minimal rather than full service new development. We must define limits of acceptable change for each environment, and focus our efforts on preserving the heritage for which we serve as caretakers within these limits. The overriding goal should be to accommodate only those visitor and management facilities within our parks that are essential to providing for uses deemed appropriate within the defined limits of acceptable change. We must seek a symbiosis between park facilities and nature based on a careful study of the physical, ecological, cultural and even spiritual qualities of the locale. Facilities should reflect a thorough understanding of a site's topography, culture, climate, light, colors, and indigenous materials, thereby enhancing the visual and ecological fit with the landscape.

VISUAL COMPATIBILITY GUIDELINES

Visual Compatibility Guidelines (VCG) were created to serve as a source for detail design decisions made on a daily basis in national parks. Park management design decisions have the potential to complement or adversely affect the visual quality of the landscape. The goal of the guideline program is to establish design suggestions that complement and reflect the unique cultural and natural landscape character of each park. The relationship between the park's landscape character and the development associated with support and service functions in a park is a critical one. The support and service development can read as a cohesive unit and blend well without detracting from the landscape character. Visual compatibility guidelines help define what role colors, materials, patterns, textures and placement of detail elements can have in the creation of a unified landscape. Ultimately, they will be developed for each park; they are the joint responsibility of park and regional office staff.

These guidelines are plans in a very workable sense. The ability to use them for simple design decisions allows each area to make daily choices with maximum freedom and with the endorsement and support of the regional office. For example, where to locate a trash can, the color the can is painted, and the relationship of the can to adjacent benches, interpretive signs, trailheads, and other landscape details are choices made as a reaction to an immediate need. Although location of a trash can may seem trivial in the scheme of maintenance operations, it shows the more typical process – reaction. Visual compatibility guidelines will facilitate decisions for these short-term needs by providing detail suggestions that ensure the overall cohesive appearance of the park. Design components addressed in the visual compatibility guidelines might include:

- architectural theme
- building mass, height, and outline (proportion, symmetry, and rhythm)
- orientation of buildings to slope and associated parking
- road surfaces and edge detailing (eg. curbs, wheel stops, etc.)
- entries, walkway systems, and surfaces

- groundform
- enclosures (walls, fencing)
- lighting
- site furniture (picnic tables, benches, drinking fountains, trash containers, etc.)
- color schemes
- construction materials and weathering characteristics
- vegetation management
- signs

Not all of these components will be addressed in each guideline, and those not covered initially can be added as the need arises.

These guidelines are not intended as a substitute for comprehensive design work and consultation with landscape architects, architects, and engineers. They can, however, serve as a framework for comprehensive planning and provide a base of knowledge and ideas that will allow park staff and designers to make design and maintenance decisions for each park in a consistent manner over time. Two visual compatibility guidelines have been completed by Pacific Northwest Regional Office staff to date – for Ebey's Landing National Historical Reserve and Fort Clatsop National Memorial. Olympic National Park visual themes have also been completed. Each of these guidelines differs in format from the others, reflecting the uniqueness of that park's cultural, historical, and natural context.

EBEY'S LANDING VISUAL COMPATIBILITY GUIDELINE

The *Ebey's Landing Visual Compatibility Guideline* was the prototype park document. The park was virtually undeveloped at the time it was prepared. The objective of the visual compatibility guideline for Ebey's Landing was to create detailed design alternatives and recommendations that reflect the unique cultural and natural integrity of the reserve. Initially managed by the National Park Service, management of the reserve has been turned over to a county land trust board. Maintenance assistance has been provided

by North Cascades staff. The Park Service continues to provide technical assistance and oversight following the transition. The *Ebey's Landing Visual Compatibility Guideline* was recognized as very important in providing continuity between National Park Service and Land Trust Board management efforts.

The uniqueness of Ebey's Landing lies in the gradual evolution of its landscape, which reflects both community growth and historic land use patterns. Remnants of the past are so closely laced into the present landscape fabric that their meaning and value permeates the whole feeling of the place. The landscape unfolds consisting of prairies, outlined by weathered rail fences and rich green hedgerows. Dense woodlands accent hill-tops and crop fields. There is a sense of water throughout the landscape, with views to Puget Sound at nearly every site. Along the island bluffs, sweeping views of coastline are revealed with driftwood-strewn beaches below and distant views of the snowcapped Olympic and Cascade mountain ranges. Design themes selected for Ebey's Landing reflect the rural texture and rhythm, and the influence of water on the island.

Development of the visual compatibility guideline began by assessing the visual character of the existing landscape. *Reading the Cultural Landscape* by Cathy Gilbert (NPS 1985) provided the framework for the identification of distinct landscape character areas. Three scales were analyzed: (1) the overall contextual setting and landscape organization of the reserve as a whole, (2) features of the built environment, including building clusters, farm complexes, fences, hedgerows and their relationship to one another, and (3) the landscape in detail, including pathways, building materials, and remnants of historic features.

Major landforms, primary circulation networks and broad land use patterns are important because while individual houses, crops, and property lines may change frequently, large settlement patterns tend to remain for generations and reflect open, arable lands into which development was channeled by restricting dense woodlands and rocky ridges. Spatial characteristics such as dominant horizontal and vertical elements, scale, types of vegetation, distance to viewer, edges of landform, landcover and structures, and backdrop are visual qualities analyzed at the intermediate scale to establish the degree of continuity of lines and patterns. Analysis of materials, textures,

colors, and degree of weathering provide a palette for new design decisions. Analysis of the second and third scales proved most significant to our effort, leading to detail design recommendations for signs, benches, fencing, bollards, bike racks, bumper stops, trash receptacles, and a viewing platform.

The *Ebey's Landing Visual Compatibility Guideline* provided guidelines for low-key new development at a series of overlooks and waysides that until then were undeveloped. A series of detailed sketches are an integral part of the document, providing sufficient information for park maintenance personnel to construct desired facilities. Sufficient analysis and detail is also presented to permit staff to assess details not originally contemplated and propose designs that would be visually compatible.

An alternate bench design and new trail crossings were developed subsequent to completion of the park's visual compatibility guideline. A brief consultation with regional landscape architects was sufficient to approve construction and ensure that visual continuity was maintained. The result has been extremely successful. For Ebey's Landing, the visual compatibility guideline has proved to be a useful tool for management and maintenance staff.

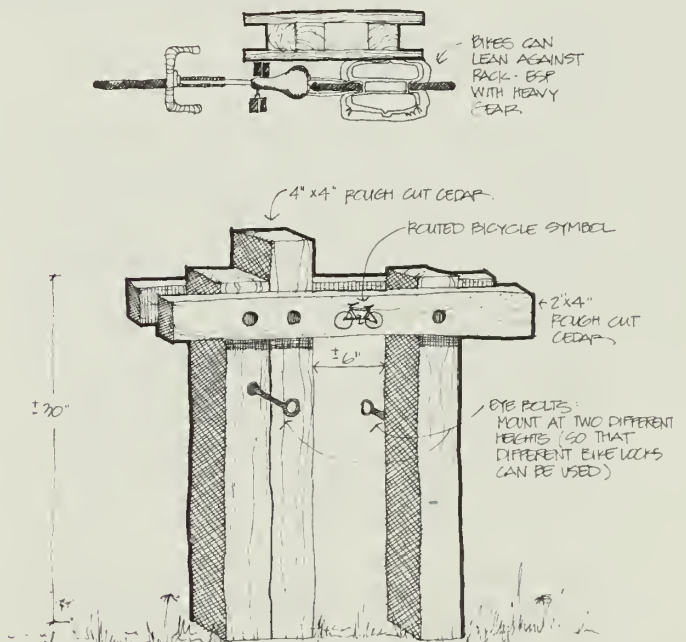


Figure 1: Sketch of Ebey's Landing NHR bike rack employing traditional island materials and weathered finish.

Figure 2: The round pickets motif of the Fort Clatsop gate is used to support the park entrance sign. (Photograph by Engineering/Design & Maintenance Division, Pacific Northwest Region, National Park Service)



Figure 3: Bench of simple design, along wood chip trail, uses local materials and blends into the landscape at Fort Clatsop. (Photograph by Engineering/Design & Maintenance Division, Pacific Northwest Region, National Park Service)



FORT CLATSOP VISUAL COMPATIBILITY GUIDELINE

The second visual compatibility guideline completed in the Pacific Northwest Region was for Fort Clatsop, a small and well-developed park with a high degree of visual unity and integrity. The objectives for this guideline were to describe in some detail the existing visual qualities and details that should be retained over time and to suggest minimal changes to allow continued evolution of the developed landscape in ways sympathetic to the integrity of the landscape. Recommendations of the Fort Clatsop Visual Compatibility Guideline were tied to the Historic Landscape Management Plan.

Visual character was determined by an analysis of the existing landscape at several scales. Visual character is described as a combination of landscape components, their visual interrelationship, and the quality of the visual landscape (e.g. how

memorable, striking, or distinctive components are the degree of visual integrity between natural and built features and the unity, visual coherence, and compositional harmony of the landscape).

Unlike Ebey's Landing, major changes occurred in the landscape of the Fort Clatsop area during the past 130 years. The original fort was burned by a settler, the site was logged and timber milled at the canoe landing, and a small orchard was planted. Natural regrowth and a planned planting schedule have since restored much of the forest cover. The long-term objective is to return site vegetation to its appearance at the time of the Lewis & Clark winter camp. Visual characteristics at the intermediate scale are simplified due to the enclosure of forest edges. Two distinct zones are present, the entry and visitor center and the replica fort, spring, and canoe landing area. Critical to the visual quality of the park is the interface between these zones. Most

important at Fort Clatsop are the details and how those in one zone complement those in the other. Consistency of forest ceiling, understory, and edge plantings provide visual unity. The round pickets motif of the fort gate is used for entrance sign mounting posts, for wayside exhibit supports to frame entrance gates, and as signposts. Other site details are made from weathered split boards and logs along wood chip trails. Key recommendations include use of historic design precedents for key interpretive site details, including naturally weathered rough wood and rock. The informal, rustic design approach used for trail surfaces and ground covers is continued. Design features analogous to historic or rustic themes, including stump seats and heavy split board benches, split rail fencing, and weathered colors are used. Visual separation of the entry and visitor center area from the replica fort and a visual transition along the pathway between these areas are maintained.

The Fort Clatsop maintenance staff plans to use the recommendations developed in the park's guidelines to justify requests for repair and rehabilitation funds to upgrade visual quality. The design guidelines provided will ensure continuity of the already high quality visual character over the years.

OPERATIONS EVALUATIONS

A second major step toward enhancing the visual quality of our parks has been to develop a visual quality component for the region's operations evaluations program. The intent of the program is to identify those operations handled especially well and that may serve as a model for other parks and to note particular deficiencies that can be corrected within a year.

The visual quality component of operations evaluations has been assigned to a landscape architect who assesses the existing visual character of patterns and relationships among landscape elements and the degree to which details complement and reflect the unique cultural and natural landscape character of each park. Individual elements assessed to date have included park-wide goals for improvement of the park landscape, park architectural theme or image statement, park entrances & entrance signs, roadside management, cultural resource protection,

signs, trails and walkways, picnic areas, campgrounds, developed area landscaping, aesthetic standards in the concessions management plan, concessioner facilities, maintenance standards, a critical element on visual quality accountability in performance standards, and training. Each element is described in terms of findings and recommendations, the official responsible for completion of the task, and a target completion date. A program summary report is presented verbally at the operations evaluations closeout.

Because virtually no baseline visual quality data exists for the national parks, the initial visual quality assessments have been quite detailed and have noted deficiencies that will require several years to correct. Collecting baseline visual quality data should be the focus of a distinct maintenance program to help establish priorities for future projects. Follow-up would include joint development of associated maintenance standards with park staff. The visual quality assessment would then more appropriately be used to identify how well each park is addressing the identified short- and long-term deficiencies.

As a follow-up to integrating visual quality into the operations evaluation program, a visual quality element has been added to each superintendent's annual performance standards, which states

The park has developed and implemented design themes and guidelines in accordance with current NPS *Management Policies*.

A specific standard still should be developed for park chiefs of maintenance, maintenance foremen, and other park professionals in recognition of their key responsibilities for visual quality in the national parks. Critical elements for their performance standards might include:

Park facilities are fully integrated into the landscape and cause minimal impact; they do not compete with or dominate park features and maintain continuity of the park image over time; maintenance of these facilities respects the design intent.

Visitor, concessioner, and management facilities reflect park design themes and are ecologically sympathetic, including siting considerations and maintenance guidelines.

Maintenance of facilities respects their natural and cultural context, and uses native materials, traditional forms, colors, and details.

With a performance standard in place, all key park staff would be accountable for the visual quality of our parks.

VISUAL QUALITY PROGRAM COMPONENT STANDARDS

Work is nearing completion on the development of draft visual quality component standards in park landscapes. The standards in their present form have been developed using numerous references, discussions with professionals, and personal experiences. The standards are arranged by the work activity codes used in the NPS maintenance management system (MMS), but have been expanded significantly beyond those included in MMS planning guidelines. The draft standards generally begin with an overall design goal or objective and siting guidelines. Next come detailed characteristics, desired relationship to associated elements, visual compatibility objectives, and maintenance standards. A copy of the draft standards will be distributed widely for review before they are finalized. Once completed, the standards for visual quality components will be applied to strengthen the Pacific Northwest Region's operations evaluation program. Hopefully the information and procedures developed may be of assistance servicewide in enhancing the visual and ecological fit of park development into the landscape.

DRAFT VISUAL QUALITY PROGRAM COMPONENT STANDARDS

1. General. Trail structures harmonize with the park landscape and are built from native materials. Structures on historic walks and trails reflect and complement historic design elements. Campsites and the immediate landscape around trail shelters and huts are generally level. Soils show little impact from trail users. Attractive topographic features and/or vegetation are integrated into trail sites.

2. Trail bridges. Trail bridges are solid and used only where relocation of trails is impractical. Materials used are native to the area and are predominant near bridge sites. Handrails on bridges match the visual character of the bridge. For handicapped accessible trails, the transitions between trails and bridges are smooth. No evidence remains of replaced bridges or unused materials for trail bridge repairs.

3. Water bars. Water bars installed to collect and direct surface runoff away from trails are solidly placed and installed at a 30° to 45° angle across trails with minimal evidence of surface erosion.

4. Boardwalks. Boardwalks (and puncheon) are level from side-to-side and have no missing, broken, warped, cupped, or loose boards; nails are tight. Replacement boards match the original in visual character. Boardwalk surfaces generally are free from moss. Board patterns and joints are visually pleasing. Handrails (if used) match the visual character of boardwalks, and are free from splits and splinters.

5. Retaining walls. Stone drywall, native log, or untreated timber retaining walls are of a consistent visual character and show no evidence of failure (bulging sections, eroded bases, loose or missing stones, or rotting timbers, etc.). Stone walls are skillfully blended into the rock outcrops that they surmount or abut so that the transition is indistinct. Native stone is used to match adjoining outcrops, and stone is not imported into areas where there is no native stone.

6. Safety railings. Trail safety railings are limited to trails with unavoidably sharp grades and that are subject to seasonal environmental hazards. Railings should reflect the predominant horizontal or vertical lines in the landscape characteristic of the trail. Materials used should complement those native to the area in scale, finish, and color.

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SANDY HOOK, GATEWAY NATIONAL RECREATION AREA

John Teichert

BACKGROUND

Sandy Hook National Recreation Area is located at the northeast corner of New Jersey. It is a narrow spit of land that juts out into the greater New York harbor area and forms a part of the Gateway National Recreation Area serving the metropolitan New York City area. Most of the Sandy Hook spit contains a variety of grasslands and woodlands with surrounding salt and freshwater marshes.

People visit Sandy Hook to enjoy the natural grasslands, to view the historic areas of Fort Hancock, and to use the saltwater beaches. Most of the area is forested with coastal vegetation and offers a contrast to the intense urbanization surrounding it. The military used most of the Sandy Hook area from the Revolutionary War to the late 1960s. An active Coast Guard station exists today at the northeastern end of the spit.

Serving the visitors to Sandy Hook are a variety of facilities staffed by National Park Service and concession personnel. They include comfort stations, seasonal beach rental kiosks, beach centers providing a variety of food and concession services, first aid and lifeguard stations, seasonal beach kiosks, comfort stations, and historic structures from past Army and Coast Guard programs. Most of the facilities are old, inconsistent in design, and unable to provide adequate services to the many visitors, especially during the heavy use summer months.

Plans to upgrade the visitor facilities were programmed to begin in 1990 by both the National Park Service and by the concessioner. The superintendent of Sandy Hook was concerned that different approaches would be used in upgrading all the various beach facilities. He felt that the new and upgraded facilities should be visually consistent and be compatible with the historic and natural characteristics of the area. He re-

quested the help of the Denver Service Center in developing criteria and standards that would guide the future designs of the facilities at Sandy Hook.

DEVELOPING THE GUIDELINES

After initial discussions with Denver Service Center and park personnel, the initial criteria and scope of the project were established. The goal was to develop a general architectural theme for the beach facilities at Sandy Hook, including those existing and programmed for the future. This theme guideline was to include general architectural concepts, building forms and profiles, appropriate materials, and colors and recommendations on siting of facilities. The guidelines were to be based on the latest draft of the development concept plan for Sandy Hook and the landscape analysis study completed earlier. The final product would be used by the designers of the specific facilities, by NPS personnel, or by architectural and engineering A/E firms hired by the concessioner.

The process for development of the guidelines involved several site visits during the winter and summer seasons. Reviews of draft documents were conducted by the park and the Denver Service Center. Annotated freehand drawings were completed, including building plans and eleva-



Figure 1: Spermaceti Lifesaving Station, an important architectural resource for identifying elements of the design guidelines for Sandy Hook in Gateway.

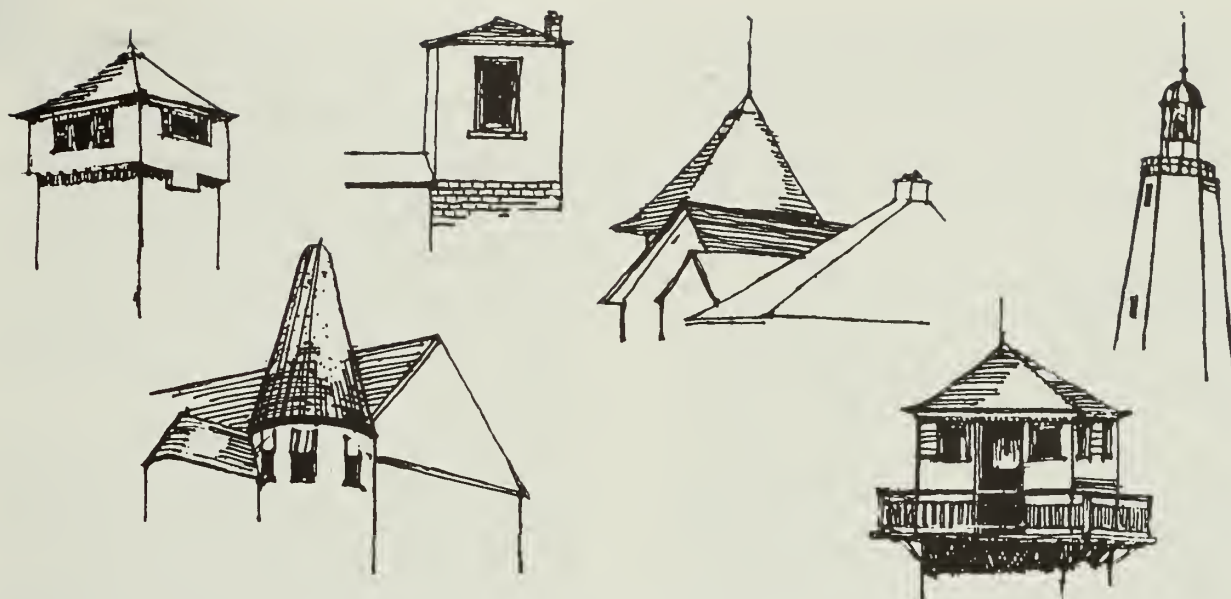


Figure 2: Study sketches of "Hook" towers represent the form and shingle style of the coastal area, forms that are significant in relationship to the U.S. Life Saving Service facilities, the predecessor to the U.S. Coast Guard. (Sketch by John Teichert, National Park Service, Olympic National Park)



Figure 3: Proposed Area "E" Beach Center design, drawing on vernacular forms and materials. (Illustration by Bruce Soehngen, DHM, Inc.)

tions and initial site plans for the various areas. Surveys and sketches were completed of facilities in the park and in surrounding communities.

The Sandy Hook area is rich in architectural styles, materials, and colors. Many fine shingle-style homes were constructed along the coast of New Jersey for beach homes and resorts. Materials were sympathetic to the harsh ocean climates. Building forms were functional and decorative. Colors and finishes were used for emphasis as well as for functional purposes. Historical styles

were evident in the facilities of private owners, resorts, and military facilities. The most evident architectural piece in the beach areas of Sandy Hook was the historic Spermaceti Lifesaving Station. This three-story, wood-shingle structure was sited along the main entry road to the beach and was used by the park for seasonal interpretation. The structure has long sweeping roofs, wood shingle detailing, and a prominent lookout tower. Its design was one of the several standard designs used by the lifesaving service for the many coastal stations along the eastern seaboard.

The Sandy Hook Guidelines include graphic and written recommendations for the future park beach facilities. The architectural theme is: "Simple horizontal building forms, reflective of the windblown dunes and vegetation . . . wood-shingle detailing and construction with 'hook' tower emphasis reflective of the historic construction of the local area beach facilities." Sections on history, buildings, materials, colors, and siting are included. Additionally, specific visual objectives and recommendations on the building types are presented as well as detailed guidelines for such objects as signs and site furnishings.

As part of the guidelines, ideas are provided to enhance the visual quality of all visitor use areas by reducing visual clutter. Specific analyses of all the visitor use facilities at Sandy Hook are included. Recommendations for each area are in graphic form with supporting written comments. Included are sketches for various facilities and sketches for siting of the beach facilities and for the adjacent historic Fort Hancock site. Additional supporting guidelines provided are the *Concession Facility Guideline for New Buildings* and the *Instruction for Submission of Proposed Alteration/Renovations of Concession Facilities*.

Each section is meant to complement the other. Material includes general architectural theme guidelines for the entire park area as well as specific recommendations on site specific problems. The intent is to provide guidelines that are useful for future designers without restricting aesthetic creativity. By using a single guideline, the future facilities at Sandy Hook will be consistent in style, form, color, and materials. It will be reflective of the historical and climatic influences of the surrounding areas.

Initial design work has focused on the beach areas at the southern end of the park which in-

clude several seasonal shelters and restrooms. Designs were developed using a charrette method, which includes intensified sessions on-site with the participation of the architects and regional and park personnel. These sessions produced recommended design concepts that were verified against the established Sandy Hook visual guidelines. Building forms, profiles, materials, colors, and general architectural themes were examined. Siting recommendations contained in the guidelines were especially valuable in developing alternatives which are sympathetic to the natural characteristics of the park.

The success of the overall process is a direct result of a successful team effort and the creative use of the general design process. The ideas and desire for sympathetic and consistent design formed the backbone of proposals that will provide quality facilities for the visitor. The concept of the design charrette was the basis of the team effort. Time for reviews was reduced substantially. The A/E firm produced final design solutions with skill and creativity.

The lesson learned from the Sandy Hook experience is that the design process must start early with the development of design theme guidelines. Architectural and visual objectives must form part of these guidelines. The themes must be specific in content and responsive to historic precedents and existing environmental influences. They must also be general enough to prevent stifling the creative design process. Openness among those on the team, from the superintendent to the final designer, will result in quality National Park Service facilities for visitor use and enjoyment.

THE ROLE OF DESIGN GUIDELINES IN MAINTAINING VISUAL QUALITY ARCHITECTURAL AND ROAD CHARACTER GUIDELINES: SEQUOIA AND KINGS CANYON NATIONAL PARKS

Marvin Wall

PLANNING FOR CHANGE

In Sequoia and Kings Canyon National Parks, major new construction will replace much of the existing development during the next 20 years, leading to the most thorough facility change ever to occur in a major national park. The primary factor in making these necessary changes is environmental. The location of past developments is producing long-term irreversible damage to the giant sequoias. The importance of the structures is relatively minor when compared to the importance of the trees. The biggest single project in this process will be the removal of numerous buildings from the giant forest. Replacement will be in a less fragile new area, Wuksachi Village (formerly called Clover Creek), some six miles away.

This project is concerned with cultural values. The developed areas in question represent the first developed and still most heavily used portions of the two parks. They contain what many visitors perceive to be the human heart of the parks. The overall project goal is replacement of these old facilities without loss of continuity with

a century of human heritage and park identity. The project approach was to document the character that evolved for these two parks in the past and to establish continuity with that character through design guidelines, thereby easing the transition from old developed areas to the new by reinforcing park identity through consistency of design.

The forward to the architectural guidelines addresses the attempt to define an architecture appropriate for new development based on a number of premises.

National parks should have built environments that contribute to the understanding that parks are special places that require special attitudes and behaviors on the part of visitors.

National parks should be developed in such a way that a consistent architectural character is present throughout the developed areas of the park.

New development in older national parks should be designed in a way that establishes a continuity



Figure 1: Rustic design cabin at Giant Forest. (Photograph by Marvin Wall, National Park Service, Denver Service Center)

with the most successful design elements of past park projects.

Ultimately, park architecture has a significant impact on how visitors perceive and use the park. At its best, good architecture provides a special human setting in which the values of the park are clarified and reinforced. At its worst, it weakens and degrades the entire park experience, detracts from the values that allow a park to survive and prosper and, thus, complicates the everyday management of the park.

Consistent design elements and details that reflect the unique character of the park should apply to road character as well as to buildings. In the early years of park development these design principles were expressed by the Park Service in the form of rustic design. To blend in with the environment, roads were designed to lie gently on the land, following contours to avoid large cuts and fills. Walls, curbs, culverts, and other support structures were made from natural materials. As a result, park roads had a distinctive different character from roads outside the parks. These roads serve a distinctly different purpose from most other roads and highways, and they should be as special as the parks that surround them.

As a result of the concern for continuity, a series of documents to guide the future design character of Sequoia and Kings Canyon National Parks developments was produced. This series includes the *Inventory of Significant Structures*, *Architectural Character Guidelines*, and the *Road Character Guidelines*.

Much of the success of the Sequoia and Kings Canyon guidelines can be attributed to the methodology used for their development. The process was unusual. While there are existing guidelines for historic districts, these guidelines deal with new construction in developed areas of natural parks where the landscape is not urban and where the natural landscape is the most valuable resource.

- A list of significant buildings was requested and identification of dominant characteristics and unifying elements were identified for use as a basis for the architectural character guidelines. This portion of the guideline, the inventory of significant structures, provided the basis for the completion of the actual guidelines. The production of the

guidelines was contracted to an architecture and engineering firm.

An outline of the task directive (scope of work) for the architectural character guidelines follows.

ARCHITECTURAL CHARACTER GUIDELINES GOALS (as stated in the task directive)

"Conserve the scenery and the natural and historic objects and the wildlife therein . . ." This is the overall responsibility from the 1916 legislation that established the national park system.

Construction should be "devoted always to the harmonizing of . . . improvement with the landscape" was Stephen T. Mather's 1918 dictum.

Stated in other ways, the goals include:

- buildings should be an accessory to nature
- design should be nonintrusive
- simplicity and restraint should be employed
- past building traditions and practices should be respected
- indigenous materials should be used in proper scale and should weather well
- natural site character should be retained
- the ability of the site to absorb modifications should be considered
- the design of individual structures should coordinate with that of the site plan as a whole
- the perceptual structure should be congruent with actual use (visual legibility)
- color, scale, location, and silhouette should aid assimilation

OBJECTIVES/PURPOSE (as stated in the task directive)

1. Develop design guidelines to provide a framework for deciding appropriate

architectural character of new buildings and alterations – a checklist to measure architectural compatibility with historic buildings or structures in the park/district. The guidelines shall cover the categories of new construction and the rehabilitation and maintenance of existing buildings. (Rehabilitation and maintenance of buildings presently on or eligible for the national register are covered by existing NPS policy (NPS-28) and regulations of the National Historic Preservation Act.)

2. Through analysis of the existing buildings that define the park/district architectural character, provide guidelines that clarify and systematize standards of appropriateness by translating into text and graphics the principles and relationships these buildings represent.

3. Provide design guidelines to perform these functions:

- identify the most important design review characteristics in the park/district
- provide reviewer with minimum standards for making decisions
- establish a system for uniform evaluation of design submittals
- promote consistency in design and design decisions
- establish objective criteria for reviewer
- provide information about rehabilitation and maintenance techniques that respect the existing architectural fabric
- speed the process of routine alterations
- save time and money for reworked design
- increase public awareness of the architectural character of the park/district and the elements that contribute to it

METHODOLOGY/SCOPE (as stated in the task directive)

The task directive identified the work to be accomplished and who was responsible – the National Park Service or the A/E consultant:

Provide a list of significant buildings and building groups or districts to be used as a basis for the guidelines. (NPS – requires knowledge of park/district architectural history and familiarity with significant buildings.)

Examine the buildings in the park/district and identify: (NPS)

dominant characteristics
unifying elements
sub-areas with different qualities
and uses
what kinds of changes taking place

Decide the level of general or specific architectural design detail most appropriate for developing the guidelines for the park/district. (NPS and A/E professional consultant)

Examine existing guidelines.

Through design analysis, evaluate identified dominant characteristics and unifying elements to develop guidelines for future construction. (Requires design analysis to relate modern technology, materials, and design philosophy to older buildings. It requires understanding these aspects of older construction and the ability to integrate them with the functional and structural requirements of new construction.) (A/E professional consultant)

While protecting recognized values, develop guidelines allowing sufficient flexibility to accommodate changing times and circumstances. Provide criteria that avoid absolutes, that recommend or discourage rather than require or forbid. Provide guidelines that are aids to decision making rather than formulas. (See *The Secretary of the Interior's Standards for Historic Preservation Projects*.) (A/E professional consultant)

Figures 2-3: Structures designed in accordance with the architectural guidelines: the fire station at Wuksachi Village, and an employee residence in the village.

(Photographs by Randy Fong, National Park Service, Denver Service Center)



Guidelines shall focus attention on those special visual and spatial qualities historically established within the park/district derived from building heights, scale, orientation, spacing and site coverage of buildings, facade proportions and window patterns, size, shape and projections of entrances and porch projections, materials, textures, color, architectural details, roof forms, horizontal, vertical, or nondirectional emphasis, walls, fences and service yards, and planting, signs, and lighting.

Guidelines shall address accessibility requirements (Uniform Federal Accessibility Standards).

Guidelines shall address federal and state energy conservation requirements as these requirements relate to the building appearance.

In developing the format for the architectural character guidelines, consideration shall be given to developing a format applicable to specific sites, districtwide, parkwide, or systemwide.

The architectural/roads character guidelines are actively serving their purpose in the park. Construction is completed on several residences, a comfort station, and a fire station designed in accordance with the guidelines. The guidelines have exerted a major influence on the design of concessioner facilities underway.

The guidelines are providing a servicewide process and product model and are being used as a benchmark for training courses on achieving visual quality in the National Park Service.

The guidelines have reestablished the emphasis of unified architecture and landscape architecture within a park and have provided the philosophy and principles of rustic architecture and landscape architecture servicewide. They are unique in providing guidelines for new construction in developed areas of natural parks where the natural setting takes precedence.

The guidelines have been recognized throughout the National Park Service as an example of what is needed in many of our parks to guide development activities. They have acted as a catalyst for similar guidelines at the Grand Canyon National Park, Gateway National Recreation Area, Mather Memorial Parkway, and the Blue Ridge Parkway.

They have provided a needs awareness with subsequent use in design contracts in Yellowstone, prompted a funds request for guidelines at Yosemite, and served as a model for completed guidelines at Lake Mead National Recreation Area. They have brought an awareness and a "can-do" attitude for developing guidelines to large and small parks alike.

The architectural/road character guidelines are making a significant contribution in Sequoia and Kings Canyon National Parks and to the NPS goal of achieving visual quality in the national parks.⁶ The guidelines have provided a classic model in process and product servicewide, resulting in cost efficiencies during the design process and the awareness and means of attaining aesthetic quality.



EVERGLADES NATIONAL PARK: VISUAL DESIGN GUIDELINES DEVELOPMENT

John C. Hall

INTRODUCTION

An accelerated design and restoration process has been underway at Everglades National Park in response to the damages caused by Hurricane Andrew on August 24, 1992. The hurricane caused extensive damage throughout the park, including substantial roof damage to fourteen buildings. The park's main visitor center at Parachute Key and several other structures suffered additional damage.

The restoration process provided an opportunity to improve the visitor center buildings and site with particular emphasis on sustainable design and compatibility with the natural environment of the Everglades. The National Park Service team assigned to this emergency action provided guidance to the architects, landscape architects, and site designers hired as consultants. The team's design process included the development of a visual themes guideline to help shape the character and form of the new visitor center.

INITIAL FOCUS

The initial task of the design team was to survey the damage and begin preparing recommendations for repairs to and replacement of damaged structures. While recognizing that quick action was needed to protect, reconstruct, or rehabilitate the structures that had been damaged, the team also saw an opportunity to rethink the basic forms, materials, and architectural character of the park facilities.

The existing visitor center was constructed during the Mission 66 transitional period of NPS history. During this era, contemporary structures were added to many of the national parks, generally without reference to regional vernacular architecture and with little concern for visual compatibility with the natural environment. The hurricane damage provided an opportunity to rethink this earlier design decision and to develop a visual themes guideline that would provide direction

for other reconstruction projects and future facilities in the park.

The design team began a two part process of structural research and analysis coupled with an investigation of vernacular architecture and site ecosystems that would serve as the basis for the visual themes guideline.

THE NATURAL ENVIRONMENT

The river of grass originally flowed unobstructed from Lake Okeechobee southward for over 100 miles to Florida Bay. Constriction of the river's flow began in the 1950s as a result of drainage measures undertaken to support regional agricultural needs and urbanization. Human impacts on the hydrology and ecological characteristics of the Everglades are apparent throughout the region. Preservation of the original ecosystems within the park is especially important because of these widespread changes.

The park encompasses a variety of distinctive natural environments that make up the Everglades ecosystem. These include the shallow Florida Bay, coastal prairie, mangrove swamp, glades and tree islands, and pine and hammock ridge. These areas support a variety of plant and animal communities that have developed as a result of their geology, elevation, and hydrology. The ecosystems have evolved in response to the climate and natural phenomena of the region, including drought, fire, hurricanes, and flooding.

As the design team evaluated the park's ecosystem, it became apparent that the area occupied by the damaged visitor center had been extensively filled. The site had previously been a transitional zone between the pinelands, hammock ridge, and sawgrass. This led the team to consider restoration of the site as part of the overall visual theme for the new visitor center.

The pine and hammock ridge ecosystem yielded a number of design cues that influenced the form

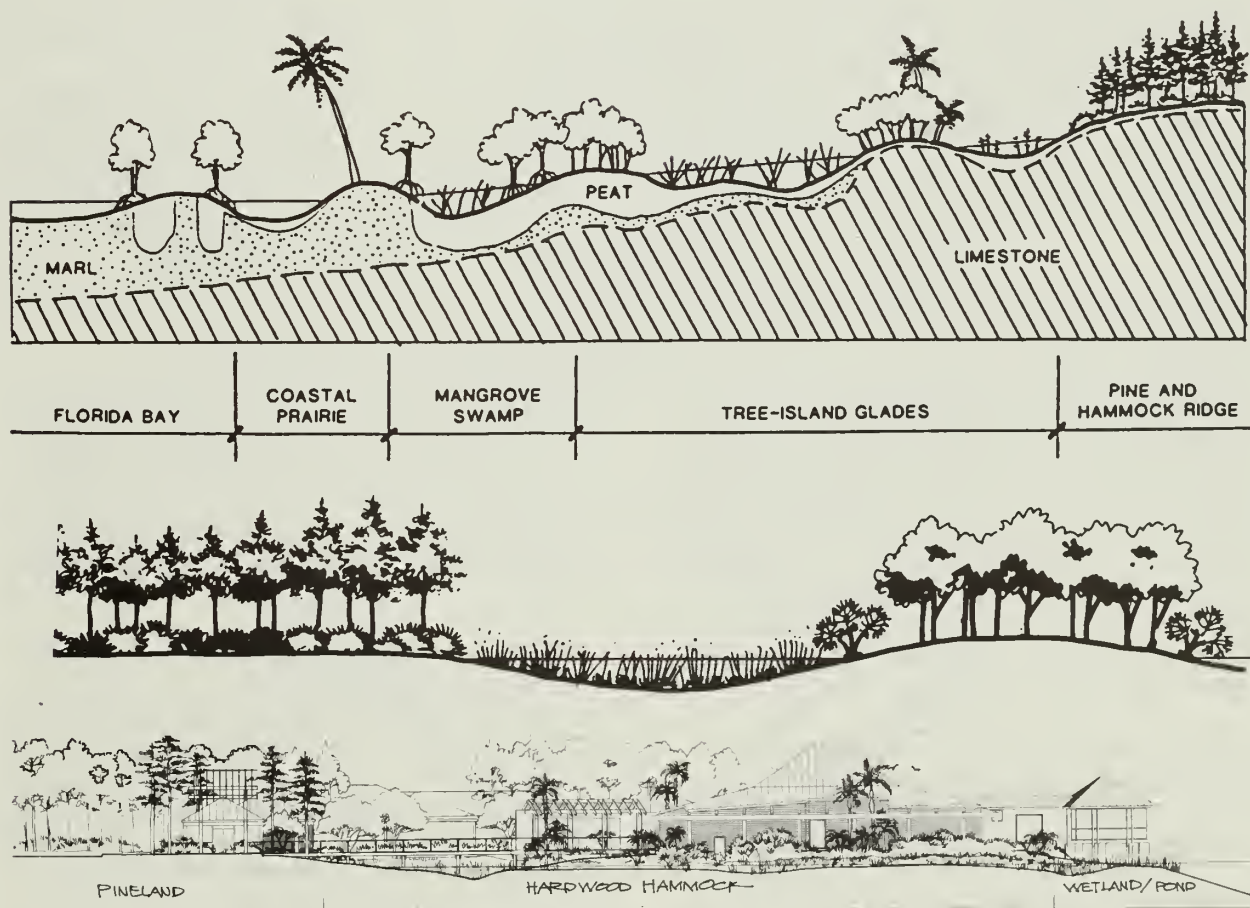
and character of the new visitor center, particularly the vertical form of the slash pine and the rounded form of the hardwood hammock. These forms ultimately provided the inspiration for the visual theme of the new visitor center that included the strong exposed vertical structural elements of the main building. The rounded form of the hammock is expressed in the roof form of the main structure, reinforced by the proposed planting of hardwoods and palms characteristic of hammock formations.

VERNACULAR ARCHITECTURE

The investigation of regional vernacular architecture began with the shelters built by the early Native American inhabitants of the park. The Native Americans responded to the environment in the Everglades by building "chickees," which are simple, pitched-roofed structures created from cy-

press trees and palm fronds. The early settlers copied the Indians by developing light frame structures, some of which can be seen today just outside the park.

The U.S. Government responded to the coastal environment in the construction of Coast Guard stations, which were built with wood frame construction placed on piles. As Florida developed after the arrival of the railroad, larger frame structures were built, many evidencing the Victorian character that was popular throughout the country. With the reclamation of the land from the swamps and the availability of oolite limestone, sand and lime gave rise to stucco and masonry-walled buildings. The Mission style and later the Art Deco style flourished in the Miami area. From the island architecture of the Bahamas came the Conch style, and the influence of boat building in the area was also reflected in some of the architecture.



Figures 1-3: Cross-sections of Everglades, pinelands and hammock, and visitor center and site.
(Drawings by LDR International, Inc.)



Figure 4: Example of modern day "chickee" built by Seminole Indians in the vicinity of Everglades National Park. (Photograph by L. Kilborn)

While the south Florida vernacular developed into the styles seen today in the region, the Everglades was left with little of its own vernacular style. The exception is the chickee, which is still used for shelter. Since vernacular is defined as "developed from a particular place or region," the design team felt that the park vernacular should grow from the earliest Native American architecture and from the natural environment without the influence of outside styles. The roof forms selected for the visitor center evoke the indigenous forms of the Native American chickee.

STRUCTURAL ANALYSIS AND DESIGN

While the vernacular architecture was being studied, a structural investigation was undertaken by the design team's structural engineers, architects, and park maintenance staff. The structural evaluation included review of damage reports, on-site review of structural failures, and the development of alternate systems. The objective of the process was the development of a structural system that could withstand future storms, be maintained by on-site park staff, and be compatible with the proposed visual themes guideline.

Elements of the structural system that had the most potential for influence on the visual theme were the framing system and roof design. Two key design elements of the recommended structural framing system will create a consistent visual form for Everglades structures – the tie beam and the column. In keeping with the form de-

rived from the surrounding vertical pines, the design team decided to have the columns expressed as a continuous vertical element growing from its point bearing to the flush tie beam at the top. All other structural members would be set back to emphasize the verticality of the columns.

Because flat roofs have proven to be difficult to maintain in the park, a variety of roof pitches using truss systems were recommended, depending on the program requirements of the building. A minimum pitch of five-in-twelve was recommended for small single buildings and up to a ten-in-twelve for the main body of larger buildings where long spans are needed or where add-on structures abut. These pitches were selected to be in keeping with the roof pitch and form of the native chickee.

With the potential for violent uplift during a hurricane, roof overhang should not extend beyond the beam. A variety of elevation options were explored to allow for the appearance of an overhang through the use of pocketed storm panels.

The product of the structural systems investigation and preliminary design was the development of a hypothetical combination of the selected elements. Figure 6 shows how a "kit-of-parts" can be used in the park and illustrates some of the key features of the system proposed.

PROPOSED SITE RESTORATION

Because restoration of the site is an integral part of the new visual themes guideline, the design team prepared illustrative drawings to explore the various restoration options. A photograph of existing conditions was used as a base to illustrate the proposed building and site design (figure 7).

Guidelines for site restoration were developed based on recent experience with experimental plots developed at the Everglades Research Center. Historic hydrological records for the visitor center site were correlated with findings from the restoration test plots. The park's landscape architect and research center staff assisted in the development of detailed criteria for restoration that included plant material selection and hydroperiod elevation criteria.

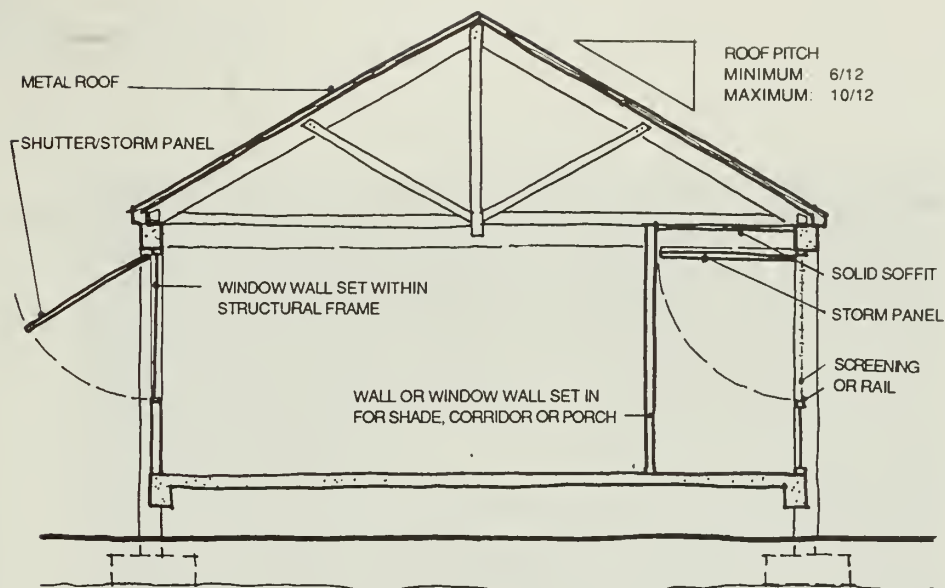


Figure 5: Cross-section showing potential material locations and pocketed storm panels.

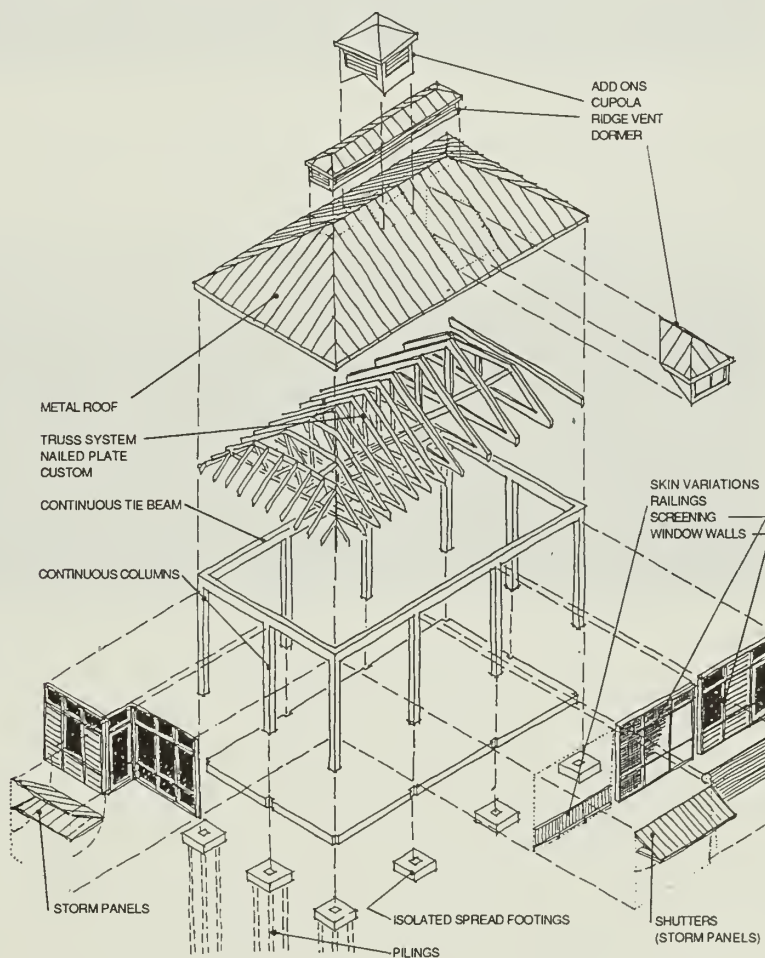


Figure 6: Schematic "Kit-of-Parts".

Figure 7: Existing site photo. (Photograph by Hank Alinger, LDR International, Inc.)



Figure 8: Aerial perspective of the visitor center. (Architecture: Grieves, Worrall, Wright & O'Hanick; Site Design/ Landscape Architecture: LDR International, Inc.)



SECTION III:

Selected Annotated Bibliography

Selected Annotated Bibliography

Carol Whittaker, Rick Dorrance,
Dennis Nagao, & Ervin H. Zube

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SELECTED ANNOTATED BIBLIOGRAPHY

Carol Whittaker, Rick Dorrance, Dennis Nagao, & Ervin H. Zube

Alesch, R.

- 1987 Evaluating and managing rural cultural landscapes in the National Park System. *In Aesthetics of the rural renaissance: Proceedings of the 1987 conference.* California Polytechnic State University, San Luis Obispo, CA.

An innovative management plan is described for the rural agricultural landscape in Buffalo National River. The plan defines visual elements of land use and architecture that should be preserved in the historic buildings. The plan permits private agricultural use and changes in the landscape and architecture that might be necessary. This is one of the only applications of design guidelines that addresses the dynamic aspects of land use and still protects visual quality.

American Society of Civil Engineers, Committee on Geometrics and Esthetics of Highway Location and Design

- 1977 *Practical highway esthetics.* New York.

This report is an engineers' response to concerns about visual quality in highway planning. It includes a discussion of the issues involved, including highway safety and aesthetics. What follows is essentially a design manual, with guidelines covering highway/terrain fit, continuity of line and grade, highway location, merging the highway into the landscape, designing the right-of-way, vegetation, highway structures, and road furniture, and improving the appearance of existing highways. There is also a set of guiding rules for three dimensional appearance and the use of contoured grading plans. Graphics include sketches, photographs, and computer images designed to illustrate concepts in the text. All graphics are captioned.

Arendt, R. and Yaro, R.D.

- 1987 Rural landscape planning in the Connecticut River valley of Massachusetts. *In Aesthetics of the rural renaissance: Proceedings of the 1987 conference.* California Polytechnic State University, San Luis Obispo, CA.

The design recommendations presented in this article address cutting-edge use of design guidelines. The authors have identified visual land use patterns typical in traditional landscapes of the Connecticut River valley and propose design guidelines that would permit alternative land uses while maintaining the visual character of the landscape. The recommendations center around the clustering of buildings, shared driveways, and setbacks from roads. This is an example of design guidelines that permit suburban residential development and still retain the visual character of rural agricultural patterns.

Beasley, E.

- 1986 *Reviewing new construction projects in historic areas.* National Trust for Historic Preservation, Northeast Regional Office, Boston, MA.

A short how-to manual for conducting surveys of areas of historic and architectural significance and to establish design guidelines and design review boards to control and monitor the addition of new buildings in historic districts.

Brolin, B.

- 1980 *Architecture in context: Fitting new buildings with old.* Van Nostrand Reinhold Co. New York, NY.

This is one of the few books that deals entirely with the visual compatibility of architecture. The introductory and concluding chapters are text while the

remaining chapters present photographs of examples in an approach similar to case studies. Some photographs include overlays of alternative architectural treatments. The examples are drawn from Europe and North America. Included are two appendixes – one covering questions for architects about designing in context, the other a handbook for communities concerned about visual continuity.

City of Lake Oswego

- 1988 *Lake Oswego urban design plan: A guidebook for development of the East End*. Lake Oswego, OR.

This urban design plan includes basic objectives and a plan concept. The design guidelines are intended to direct the implementation of the plan concept for specific districts, including such elements as trees and pavement texture changes, signs, street furniture, building height, and architectural detailing. The specifications for elements, materials, and detail are often vague. Graphics include maps and conceptual sketches. Section two is a summary of issues and principles of urban form as they relate to Lake Oswego.

City of Portland

- 1983 *Downtown design guidelines*. Bureau of Planning. Portland, OR.

Portland's downtown design guidelines are based on a set of goals derived from a theme study done in 1972. To implement those goals, a set of 20 guidelines were outlined. Elements covered by these guidelines include the city block structure, pedestrians and pathways, continuity and compatibility in design, stopping places, plazas and walks, and structures over the right-of-way. Also included are guidelines for special districts within downtown Portland. Graphics are primarily photographs with some maps of applicable areas. Graphic captions are explanatory as well as illustrative.

City of Santa Fe

- 1986 *Historical district handbook*. Santa Fe, NM.

Santa Fe's *Historical District Handbook* provides an example of the use of design themes, standards, and guidelines as developed by urban designers' interpretations of the city's historic district ordinance. With a short summary, it defines the basic historic theme of "Pueblo Spanish," as well as the architectural character (design theme) of each of the city's historic districts. Design standards are specified for such elements as building massing, color, openings, roofs, materials, portals, overhangs, solar features, walls/fences, and parking. Design guidelines include scale, continuity of streetscape, and roofs. Graphics with captions are used to provide examples of appropriate and unacceptable elements.

City of Santa Fe

- 1982 *Architectural design review guidelines*. Santa Fe, NM.

These are architectural design guidelines for the city of Santa Fe, prepared by representatives of the Santa Fe chapter of the American Institute of Architects. They concentrate on the elements of massing and scale, surface materials and texture, solar design features, exterior space, color, and signs. Graphics include photographs and sketches illustrating good and bad examples.

Cooper-Marcus, C. and W. Sarkissian

- 1986 *Housing as if people mattered: site design guidelines for medium-density family housing*. University of California Press. Berkeley, CA.

This book provides an excellent example of guidelines written for the needs and interests of designers. It distills the findings from approximately 100 post-occupancy housing evaluation studies plus related research from the environment-behavior field. The authors

distinguish among the varying housing needs of different groups using criteria such as age, gender, and health. Guidelines generally include text, design alternatives, and illustrations, and relate specifically to site planning for low-rise, medium- and high-density housing.

Cox, W.

- 1988 The Secretary of the Interior's standards for rehabilitation. *Preservation Forum*, vol. 2:2. pp. 2-5; Jandl, H. Ward. (1988). *Preservation Forum*, 2(2):6-9; Gwathmey, C. (1987). Viewpoints: Design review. *Preservation Forum*, 1(1):2-4; and Fitch, J.M. (1987). *Preservation Forum*. 1(1):5-7.

This is a series of comment and response guest editorials in an historic preservation periodical/newsletter. The first set deals with *The Secretary of the Interior's Standards for Rehabilitation*; the second with the use of design guidelines. The authors are all practitioners with direct experience in designing buildings under the constraints of design guidelines that call for compatible architecture. Contradictory viewpoints supporting and opposing the restrictions of design guidelines are presented.

Duerksen, Christopher J.

- 1986 *Aesthetics and land-use controls: beyond ecology and economics*. American Planning Association. Planning Advisory Service Report #399. Chicago, IL.

This is one of the best reviews of the use of design guidelines in residential neighborhoods and central business districts. The author reviews the legal history of judicial decisions and provides summary quotes from applied design guidelines and judicial decisions that support their use. This article is oriented toward law.

Esherick Homsey Dodge and Davis, et al

- 1989 *Sequoia and Kings Canyon national parks architectural character guidelines*. Government Printing Office. Washington, D.C.

Six exemplary buildings from within the parks are analyzed to identify salient elements of the rustic designs, including siting, roof treatment, foundation/lower walls, entrances, windows, doors, and architectural details. Design guidelines are presented relating to site character, overall building form, facades, and landscape details. Buildings, design elements, and concepts are illustrated throughout the report with photographs and line drawings. This is one of three related reports on design guidelines for the two parks.

Farbstein, J. and Associates, and Min Kantrowitz and Associates, Incorporated

- 1986 *Design aesthetics and postal image: final report*. San Luis Obispo, CA.

This report is essentially a theme study – a discussion of the U.S. Postal Service image and its role in planning facilities. Through an extensive set of focused interviews and surveys, the consultants found the most important elements of post office images are friendliness, identifiability, efficiency, and as a symbol of America. Their recommendations for implementation of the design themes are mostly policy oriented, although there are some suggestions about guidelines. Graphics include photographs of good examples and sketches of suggested design treatments. The major significance of this study is in its use of public and employee surveys and interviews as a primary source of information about design images.

Giamberdine, R. and Goodrich, T.

- 1990 *Sequoia and Kings Canyon National Parks road character guidelines*. National Park Service, Denver Service Center, Government Printing Office. Washington, D.C.

The stated purpose of this report is "to establish a design style and theme for road-related details . . . that is based on the principles of rustic design." An analysis of both road details and the existing road character is presented in text, maps, and photographs. Design recommendations are discussed and illustrated with perspective sketches for grading and revegetation, and for site details, including materials, walls, curbs, drainage features, guardrails, signs, turn-outs, and parking. This is one of three related reports on design guidelines for the two parks.

Glassford, Peggy

- 1983 Appearance codes for small communities. Planning Advisory Service Report #379. American Planning Association, Chicago, IL.

A review of the design guidelines used in central business district and residential neighborhoods. Focused primarily on towns surrounding Chicago where there is an established tradition of using design guidelines. The author describes review procedures and a typical code and presents the data from a survey sent to eight communities with design guidelines. The analysis contains a short legal review of regulating aesthetics and four appendixes covering definitions, criteria, submittal requirements, and a sample application form.

Good, A.H.

- 1938 *Park & recreation structures*. National Park Service. Reprinted, 1990, Graybooks, Boulder, CO.

An expansion of an earlier work published in 1935, this is a reprint of the classic reference on rustic design with a new introduction by historian L.S. Harrison. It dominated the design of structures and facilities in national, state,

county, and metropolitan parks until the 1950s. The book is organized into sections representing specific facility types such as entrances, check stations, bridges, and community buildings. Each section is amply illustrated with plans and photographs.

Groat, L.

- 1984 "Public Opinions of Contextual Fit." *Architecture*. November:72-76.
- 1983 "Measuring the fit of old to new." *Architecture, The American Institute of Architect's Journal*. November:58-61.

Groat, L. and Canter, D.

- 1979 "Does post-modernism communicate?" *Progressive Architecture*. December:84-87.

Groat is one of the few researchers who has studied public perceptions of fit or compatibility between old and new architecture. The 1979 and 1983 articles represent the authors' professional judgment about what the public might think. The 1984 article reports the results of research that finds replication of the facade to be the most important factor in public perceptions of compatibility. The research is presented in a nontechnical, easy-to-read format. Each of the articles is illustrated (including in the 1984 article) with photographs of the buildings the public found compatible and those judged incompatible.

Habe, R.

- 1987 Seeking community character compatibility for small town and rural communities: The role of the design guidelines/design review method. in *Aesthetics of the rural renaissance: Proceedings of the 1987 conference*. California Polytechnic State University. San Luis Obispo, CA.

This article presents design guidelines from a planner's perspective. It summarizes the response from 15 California communities with design guidelines. It covers four main concerns – whether the method adequately addresses unique qualities, whose aesthetic judgments should be the standard, whether

guidelines should be limited to aesthetic criteria, and whether compatibility should be limited to uniformity and replication. The author provides recommendations based on the responses. These recommendations include basing guidelines on harmony with the natural environment, communitywide studies of perceptions, using special districts, prevention of excessive uniformity, and the inclusion of more nonaesthetic criteria.

Harrison, L.S.

- 1989 *Sequoia and Kings Canyon National Parks inventory of significant structures, architectural character guidelines*. Washington, D.C. Government Printing Office.

This is one of three reports on design guidelines for the two parks. It presents a history of development in the parks and an inventory of 90 historic buildings. No backcountry structures are included. Each building is located on vicinity maps, illustrated, and documented as to date of construction and significant architectural features. The report is intended to serve as a source book for designers. It concludes with a summary of specific architectural features of the historic park structures.

- 1986 *Architecture in the parks national historic landmark theme study*. Government Printing Office. Washington, D.C.

This is a report of nominations of national park structures for landmark status. It includes a brief history of design in the parks up to World War II. Also included is a brief commentary on the post-war Gateway Arch (designed in 1947) at Jefferson National Expansion Memorial National Historical Park. The major portion of the report consists of copies of the inventory nomination forms with supporting maps and photographs for 30 individual buildings and historic districts.

Lang, J. C.

- 1978 *Building with Nantucket in mind*. Nantucket Historic District Commission. Nantucket, MA.

This is an outstanding example of local design guidelines covering all landscapes on Nantucket. While many of the guidelines cover architecture in the historic developed areas, there is a second set of guidelines applied to new development in more natural settings. The guidelines are tailored to natural topography and the vegetative communities on the island. The guidelines for development outside the towns have been skillfully crafted to identify features that should be preserved. The use of native vegetation to screen new development is also described.

Marans, Robert W, and Stokols, D. (Eds.)

- 1993 *Environmental Simulation Research and Policy Issues*. Plenum Press. New York.

A long-awaited contribution to the literature, this edited volume brings together chapters that address applications issues, simulation techniques, and policy implications of the uses of simulation for environmental decision making. The environments addressed range from the scale of individual rooms to entire landscapes. Both static and dynamic simulation techniques and applications are addressed. Other topics addressed include the uses of simulation for citizen participation in planning and design review and as a research tool to advance understanding of human/environment relationships.

Nakata Planning Group, Incorporated

- 1986 *Presidio of San Francisco design guide*. Nakata Planning Group, Inc. Colorado Springs, CO.

As part of the Golden Gate National Recreation Area and the oldest continuously active military installation in the United States (established by the Spanish in 1776), the Presidio of San Francisco is a unique historic and scenic landscape. The design guide for the

Presidio is both a theme and guideline study. The theme is established through an examination of the military mission of the installation, the environmental features of the site, the recreational and open spaces, historic values, and visual images of the various neighborhoods of the Presidio. Design guidelines concentrate on architecture, landscape design, and site systems. Maps and illustrations (photos and sketches) are keyed to the text and captioned. Also included are sections on design concept applications and a design review checklist.

National Park Service

- 1988 *Housing design and rehabilitation guideline NPS-76*. Washington, D.C.

This looseleaf manual addresses park housing design, regulations, and rehabilitation. The design section includes subsections on design themes, site and individual unit design guidelines, building materials, cost analysis, funding, and specifications. An important addition is the section on employee housing preferences based on survey data from both seasonal and permanent employees. The manual provides basic information and is intended to be a dynamic document with revisions being issued as new information becomes available.

- 1987 *Guidelines for design of fee collection facilities*. Denver Service Center, Denver, CO.

A history of the design and function of entry stations is presented in photographs, plans, and text. Seven basic kiosk structures are diagrammed together with lists of important design considerations, optional design features, site features, and equipment features.

Dimensions of public and private motor vehicles and diagrams of road cross-sections are included. An appendix by bureau historian B. Mackintosh presents a brief history of visitor fees in the national park system.

- 1987 *National sign system study*. Denver Service Center. Denver, CO.

The evolution of sign design in the national park system is illustrated and categorized as encompassing three eras: rustic, Mission 66, and highway safety. A brief analysis of the NPS design system and of various state park systems is included. Insensitive signs and aesthetic integrated park sign systems are illustrated. Problems and recommendations are discussed in reference to management, planning and design, production and procurement, maintenance, and research.

- 1987 *Visual compatibility guidelines Ebey's Landing National Historical Reserve*. Pacific Northwest Regional Office, Engineering/Design & Maintenance Division. Seattle, WA.

This report is intended to "serve as a source for detail design decisions that are made on a daily basis . . ." the details reflect the cultural and natural contexts of the reserve, elements of which are presented in both photographs and text. Landscape character areas are identified and mapped, as are sites that have been selected for interpretive waysides. Design details are provided for specific areas, including site development and site furniture. General design recommendations are contained in a brief appendix.

- 1979 *Cape Hatteras National Seashore Design Manual*. MTMA Design Group, Denver.

The Cape Hatteras National Seashore Design Manual is a primer that uses the ecology of North Carolina as the context for outlining principles of design and construction appropriate to this and similar locales. These principles apply to facilities, their siting, and their use. They carry information valuable to architects, landscape architects, and those who manage visitors and resources or maintain buildings and structures. The manual covers natural systems, local architectural styles, and the design process and principles. It is a primer in the

best sense – it provides the basics of design for those whose jobs are peripheral, but related, to the design disciplines, including site managers and maintenance supervisors. It also provides design professionals with the specific opportunities and constraints inherent in the cultural and physical ecology of the Outer Banks of the Carolinas. It provides both basics and specifics through a simple, seamless, and user-friendly integration of informal text and illustration.

- n.d. *Turkey Creek Unit architectural theme study, visitor center, headquarters, maintenance facility.* Big Thicket National Preserve, TX.

This report establishes a design theme for the first design and construction projects at the preserve. Past and present architectural themes in the region are presented in text, drawings, and photographs. Lacking strong regional models, a contemporary design theme is presented to project an image emphasizing the Man and the Biosphere concept. Factors listed as affecting the theme include climate, energy conservation, building materials, formal design elements, and symbolism.

National Park Service and New England River Basins Commission.

- 1975 *Shoreline Appearance and Design A Planning Handbook.* Roy Mann Associates, Inc. Boston, MA

The coastal Zone Management Act of 1972 directed attention to the multiple values of coastal zones, including visual values. This report provides an excellent model for extending concerns with visual values to landscapes that range in scale from the region to cities, towns, and sites. The entire coastline of Long Island Sound is the region of concern. Based upon an inventory that first categorized shorescape types, visual elements are identified, including outstanding scenic assets, eyesores, deficits, intrusions, and significant viewpoints. Criteria are specified for protecting existing visual quality and for

future development in the various shorescape types. Shorescape types fall into several major categories and are based on natural geomorphological characteristics and built environments. Design guidelines are presented for development in both natural and cultural landscapes.

- National Trust for Historic Preservation
1980 *Old and new architecture design relationship.* The Preservation Press. Washington, D.C.

This is a collection of 18 papers presented at a conference of the same name. The majority of the authors are architects. The papers cover a wide range of ideas about appropriate design and institutional approaches to adding new structures to historic areas. Arguments both for and against the use of design guidelines and design review boards are presented. A significant feature is the extensive use of photography to illustrate topics and issues such as compatibility of design styles and approaches to the design of infill structures for historic districts.

National Park Service, Park Historic Architecture Division

- 1984 *Cultural landscapes: rural historic districts in the National Park System.* Melnick, Robert Z., Spohn, D. and Saxe, E.J. Washington D.C.

The guidelines and procedures that have been promulgated for protecting historic buildings often do not include cultural landscapes. This report addresses the following as elements to be considered in protecting rural cultural landscapes: spatial organization; land use activities, circulation networks, cluster arrangements of farms, and vegetation related to land use. The authors cover planning, identification, evaluation, and management options in separate chapters. The publication is illustrated with photographs and line drawings. This is a pioneering effort of the National Park Service, moving beyond preservation/protection focused exclusively on buildings.

Poole, Samuel E. III.

- 1987 Architectural appearance review regulations and the first amendment: the good, the bad, and the consensus ugly. *The Urban Lawyer*. 19(2):287-344.

This article presents legal issues in the use of design review. The author first provides an overview of the purposes for design review and discusses five case studies: the Vieux Carre; landmark protection in New York City; Coral Gables, Florida; New York City planning requirements for open space; and design guidelines in residential Lake Forest, Illinois. The author then presents a review of the law in the context of each of these examples. His primary findings are that architectural review ordinances are regulations of architectural expression, but only the ordinances forbidding excessive dissimilarity are unconstitutional.

Schmertz, M.F.

- 1993 "Dictating Design." *Architecture*. 83(2):33-35.

Following a brief description of the evolution of design guidelines and the role of design review boards, the author presents a summary of an international symposium held in Cincinnati, Ohio, on the interrelationships between design guidelines and design review. Also included is a report on a survey of 170 design firms' experiences with and attitudes about design review. The author concludes that "design review, along with some form of guidelines, appears to be here to stay" and recommends that design guidelines be incorporated with zoning ordinances.

Stanton, Boles, Maguire, and Church

- 1966 *A report on appearance planning for BPA (Bonneville Power Authority)*. Stanton, Boles, Maguire, and Church.

Electric power substations and transmission lines are not known for their scenic beauty, and the Bonneville Power Authority (BPA) commissioned Stanton, et al. to develop a concept for making power facilities and equipment more

visually compatible with the surrounding landscape. The consultants recommended a systemwide uniformity of design of all elements in the power system – with consistent use of materials, shapes, patterns, and colors. They recommended a consistent design theme and made a set of proposals that represent incipient guidelines for power substations and transmission lines. Diagrams and sketches include explanatory captions.

Taliesin Associated Architects

- n.d. *Master design guidelines*. Taliesin Associated Architects. Scottsdale, AZ.

These guidelines are meant to protect the visual quality and desert landscape of Desert Mountain, a residential development near Scottsdale, Arizona. Desert Mountain is on the urban fringe of the Phoenix Metropolitan Area, bounded on the north by Tonto National Forest. This document provides an example of the approach taken by students of Frank Lloyd Wright in protecting a scenic and sensitive desert landscape. The guidelines outline the review and approval process, site development guidelines, architectural design standards, and construction regulations. They also include a glossary of definitions and lists of approved and prohibited plants. The only graphics show examples of building masses.

Teichert, J.E.

- 1989 *Olympic National Park visual themes*. Olympic National Park. Port Angeles, WA.

This looseleaf manual addresses the parkwide theme of wilderness and subthemes of alpine, forest, and coastal areas. Areas that require special attention within each subtheme are identified and their history and uses noted. Visual management objectives and guidelines are included for buildings, site structures, site furniture, utility structures, signs, roads, and trails. Parkwide design details are included. It represents a comprehensive approach to park themes and guidelines and is designed for ease of use, revision, and expansion.

The Sea Ranch Association

- 1985 *The Sea Ranch Design Manual*. Sea Ranch, CA.

The Sea Ranch is a residential development on the northern California coast. It is a 5,000-acre tract of land on a formerly wild section of coast of immense scenic value and sensitivity. The purpose of the design manual is to provide guidelines for new developments that do not detract from the existing natural environment. The manual includes a summary of important physical factors and recommendations for design adaptation. There is also a listing of design restrictions and recommendations about such items as height limits, roof slope, forms and materials, exterior wall colors, windows and skylights, foundations, outdoor structures, and fencing. Graphics used are illustrative of architectural styles appropriate to the development; they are not keyed into the text.

U.S. Department of the Interior, Heritage Conservation and Recreation Service.

- 1980 Rural preservation: a perspective and a challenge. Stipe, Robert E. In *New Directions in Rural Preservation*. Washington D.C.

This chapter of the edited volume serves as a descriptive introduction to issues in protection of rural landscapes and starts with a brief historical review from the 1960s and the passage of the Historic Preservation Act of 1966. That is followed by a summary of issues such as defining rural resources, the applicability of established legal procedures in rural landscapes, poverty, and planning considerations. Stipe concludes with projections from the 1980s for what the future may hold. The concerns – threats to rural landscapes and the unlikelihood of a comprehensive national land use policy, seem as current in the 90s as in the 80s.

- 1980 The role of historic preservation in tomorrow's rural landscape. Tishler, William H. In *New Directions in Rural Preservation*. Washington D.C.

The author makes a strong case for the protection of rural landscapes. He notes

that traditional preservation has not understood or addressed countryside issues. He called for new approaches to preservation in rural areas. These approaches can include the use of remote sensing and the work of cultural geographers and folklorists. Tishler notes that historic preservation efforts must encompass understanding of the land and natural ecological processes. While not delineating design guidelines or design review recommendations, he discusses underlying issues that relate to moving historic preservation beyond strict attention to buildings and defining historic districts as small clusters of buildings to cultural patterns on the landscape.

- Williams, N., Jr., E.H. Kellog and P.M. Lavigne
1987 *Vermont townscape*. Rutgers University, Center for Urban Policy Research. New Brunswick, NJ.

This book provides a visual analysis of thirty Vermont towns and the contextual factors of changes affecting them. Significant elements of visual amenity and town image are identified along with the distinguishing forms and details of the prevailing pre-World War I house types. Recommendations are given for protecting town image and visual amenity. Concepts and examples are illustrated with photographs, plans, and diagrams.

- Yunk, R.A.
1989 *Architectural theme study Buffalo National River*. National Park Service, Denver Service Center, Denver, CO.

The design theme in this report is established through brief inventories of both the natural and cultural landscapes, with greater detail given to documenting local vernacular architecture in both text and drawings. The design theme is described as drawing upon principles of the rustic design ethic and is illustrated with the use of conceptual design guidelines that include: energy/climate, site character, spatial composition of structures, elements of building forms and landscape details.

